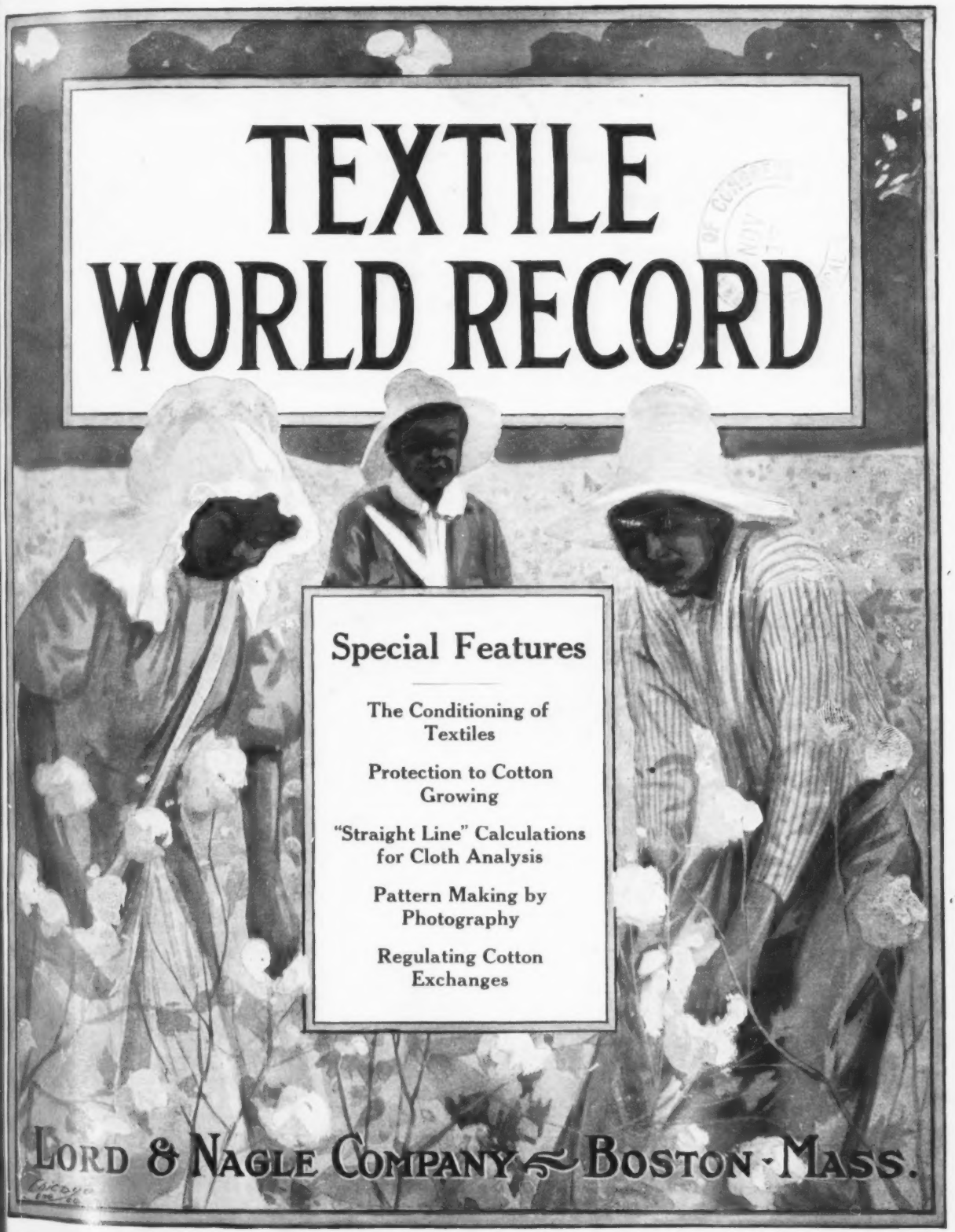
Number 2
Volume XLVI

NOV 17 1913

NOVEMBER, 1913

$2.00 per year
$3.00 with Directory

TEXTILE WORLD RECORD



Special Features

The Conditioning of Textiles

Protection to Cotton Growing

"Straight Line" Calculations for Cloth Analysis

Pattern Making by Photography

Regulating Cotton Exchanges

LORD & NAGLE COMPANY ~ BOSTON - MASS.

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The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

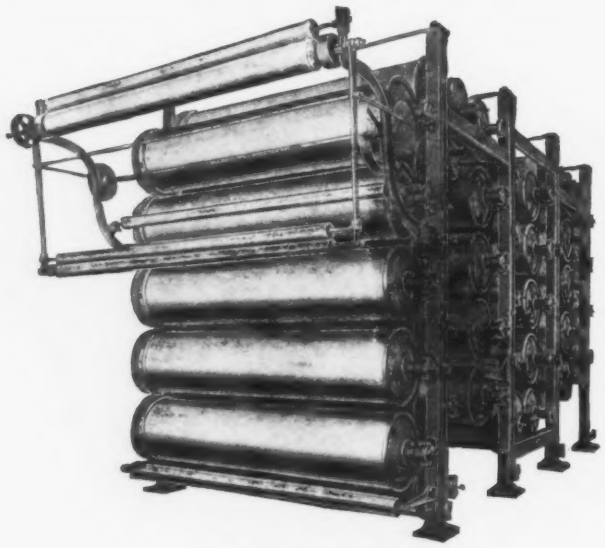
BUILDERS OF

Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants



Upright Drying Machine

ALL KINDS OF

Horizontal and Upright Drying Machines

With cylinders made from either the best English tinned iron or best Lake Superior sheet copper, fitted with our

Patent Spiral Scoops

Dryers especially designed for narrow fabrics, cotton, woolen and worsted goods and cotton warps

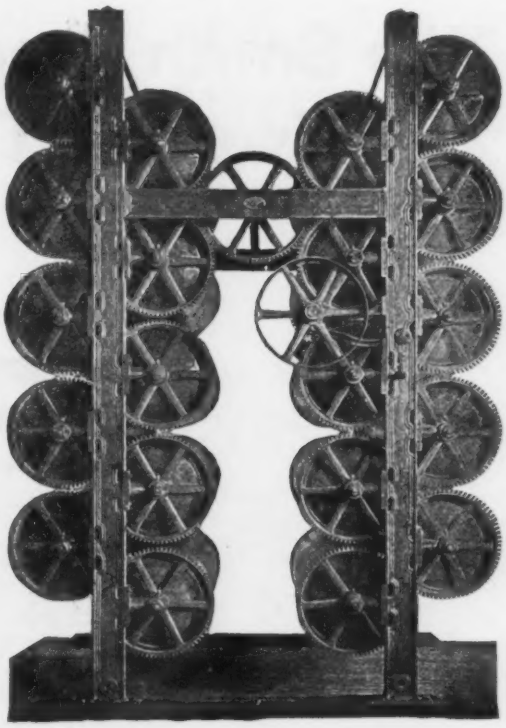
Bleaching,

Dyeing,

Drying,

Finishing,

Machinery



20-Cylinder Drying Machine

for all

kinds of

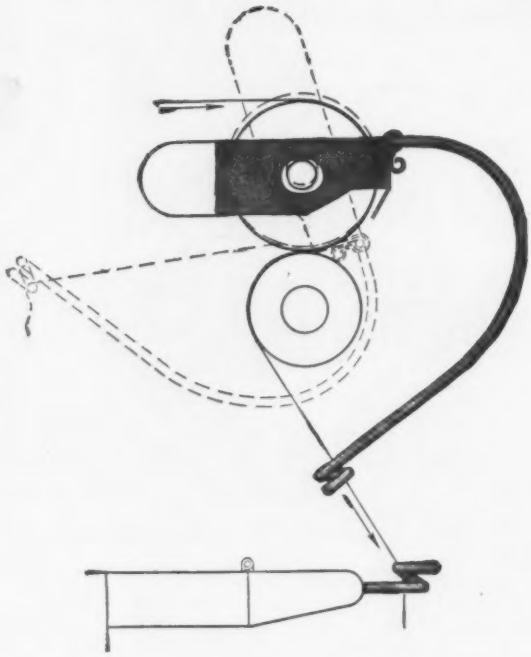
textile fabrics

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

PROVIDENCE OFFICE, Room 417 Industrial Trust Building

The Smith Stop Motion for Two Ply Twisting



Eliminates waste; prevents roller laps; enables the help to tend more spindles; the only simple device for the purpose. Applicable to Worsted as well as Cotton Twisters.

DRAPER COMPANY

HOPEDALE, MASS.

RATINÉ FABRICS

Call for Novelty Yarns Such As Made On Our Twisters

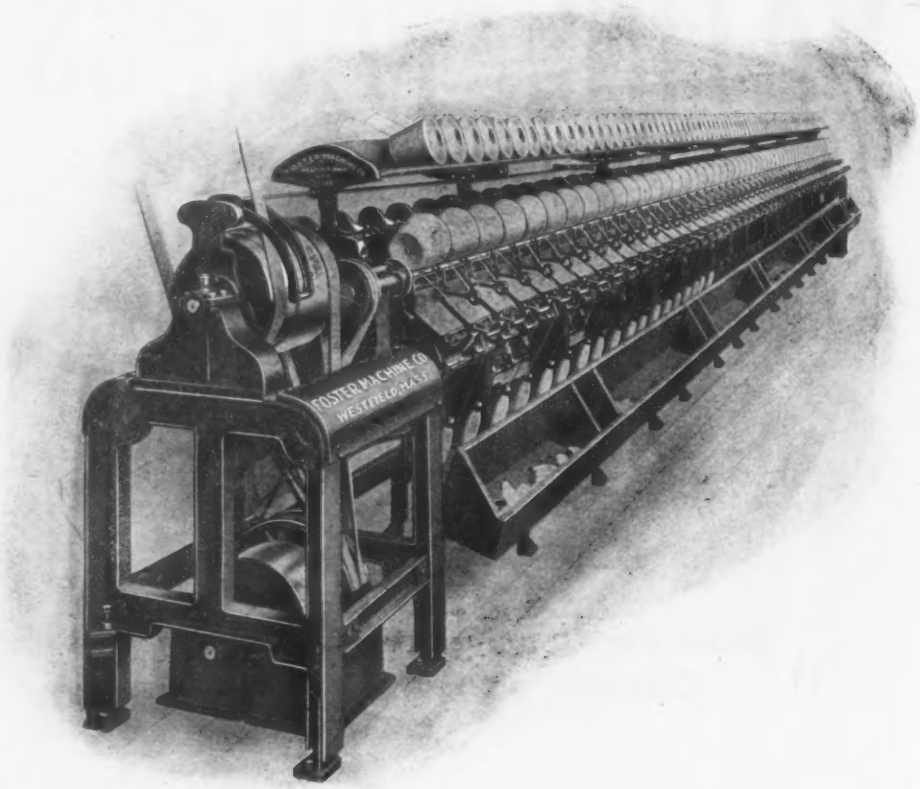
Send for Copyrighted Colored Art Circular on Novelty Yarns

DRAPER COMPANY

HOPEDALE, MASS.

J. D. CLOUDMAN, Southern Agent,
40 South Forsyth St., Atlanta, Ga.

The Foster Cone Winder



The cone package has attained its present favor through the extension of the use of the Foster Cone Winder.

Foster finishing has eliminated cobwebbed cones, ribbon wind chafing, loose ends and guide rubbed cones.

75 per cent of all the knitting yarns produced in the United States are wound on this machine.

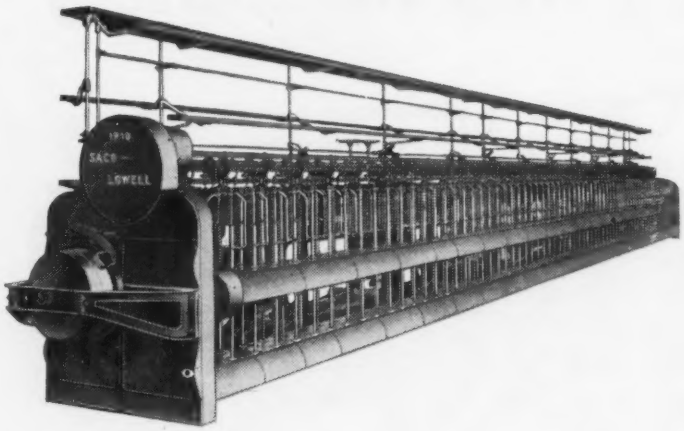
Foster Machine Company

Westfield, Mass.

John Hill, *Southern Agent*, 3rd National Bank Building, Atlanta, Ga.

Saco-Lowell Shops

TEXTILE MACHINERY



Shops—
Lowell, Mass.
Biddeford, Maine
Newton Upper Falls, Mass.

Executive Offices—
77 Franklin Street
Boston, Mass.

Southern Agent, ROGERS W. DAVIS,
Charlotte, N. C.

COMPLETE COTTON MILL EQUIPMENT
Including:
Pickers
Cards
Drawing
Evener Drawing
Roving
Spinning
Twisters
Slashers
Spoolers
Reels
Winders
Warpers
Looms

WASTE RECLAIMING MACHINERY

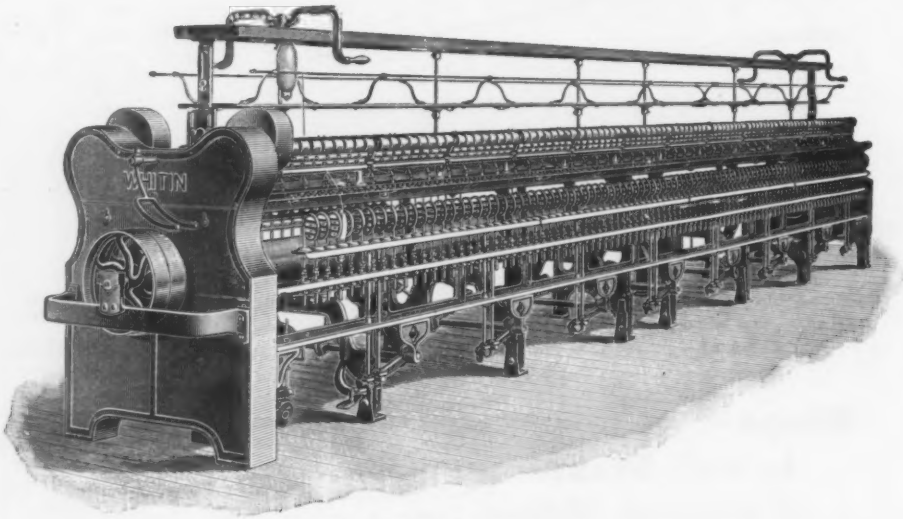
WORSTED MACHINERY
Including:
Revolving Reels,
Gill Boxes
Drawing Frames,
Reducing and Roving Frames,
Cap Ring and Fly Spinning and Twisting Frames
Jack Spoolers

The Whitin Machine Works

Whitinsville, Mass.

BUILDERS OF

Cotton Mill Machinery



Ring Spinning Frame

CARDS
COMBERS
DRAWING FRAMES
ROVING FRAMES
SPINNING FRAMES
SPOOLERS
TWISTERS
REELS
LONG CHAIN QUILLERS
LOOMS AND DOBBIES

Southern Agent: STUART W. CRAMER, Charlotte, N. C.

The Largest Alpaca Mill in America

Your business is operating a mill, so there is no particular reason why you should take the responsibility of the size of the humidifying equipment to be furnished.

Therefore, insist upon having a guarantee to give you the required results during all seasons.

The Carrier System is guaranteed to give the required results continuously — temperature as well as humidity.

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt Street, New York City

NEW ENGLAND
E. T. Lyle, 1862 Beacon St.
Brookline, Mass.

CHICAGO
Ft. Dearborn Bldg.
Clark and Monroe Sts.

PHILADELPHIA
732 Real Estate Trust
Bldg.

BUFFALO, 490 Broadway

LEIGH & BUTLER

SUCCESSORS TO

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENTS

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

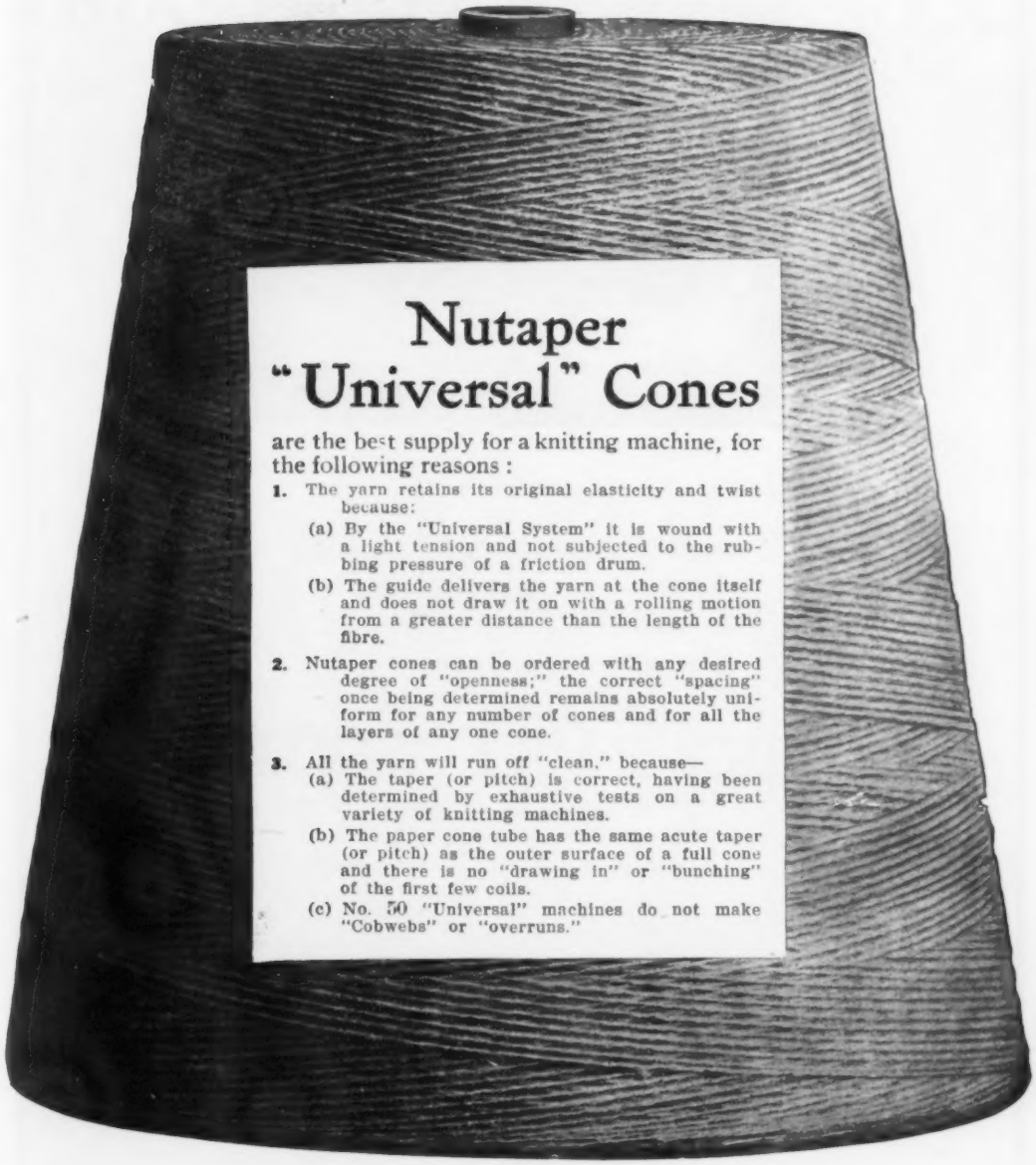
Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber — will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

JOSEPH SYKES BROS. Card Clothing for Cotton.
JAMES CRITCHLEY & SONS. Card Clothing for Woolen and Worsted.
WILSON BROS. BOBBIN CO. Bobbins, Shuttles, Etc.
THOMAS B. HAIGH. Double Loop Bands, Spinning Tape, Etc.
DRONSFIELD BROTHERS. Grinding Machinery and Emery Filleting.
HARDING'S Fallers, Pins and Circles.
The Best French and English Combing and Rubbing Aprons.
Card Flats reclothed and Lickers-in rewound.



Nutaper "Universal" Cones

are the best supply for a knitting machine, for the following reasons :

1. The yarn retains its original elasticity and twist because:
   (a) By the "Universal System" it is wound with a light tension and not subjected to the rubbing pressure of a friction drum.
   (b) The guide delivers the yarn at the cone itself and does not draw it on with a rolling motion from a greater distance than the length of the fibre.
2. Nutaper cones can be ordered with any desired degree of "openness;" the correct "spacing" once being determined remains absolutely uniform for any number of cones and for all the layers of any one cone.
3. All the yarn will run off "clean," because—
   (a) The taper (or pitch) is correct, having been determined by exhaustive tests on a great variety of knitting machines.
   (b) The paper cone tube has the same acute taper (or pitch) as the outer surface of a full cone and there is no "drawing in" or "bunching" of the first few coils.
   (c) No. 50 "Universal" machines do not make "Cobwebs" or "overruns."

The two largest textile mills built in 1913 have bought "Barreled Sunlight" for their plants

THE LUDLOW MANUFACTURING ASSOCIATES
LUDLOW, MASSACHUSETTS
AND THE
DAN RIVER COTTON MILLS
DANVILLE, VIRGINIA

RICE'S MILL WHITE

will go into every textile mill in the country when their owners appreciate the fact that to paint their ceilings and walls with it is the most satisfactory and most economical way to secure *absolute cleanliness and the maximum amount of light.*

RICE'S MILL WHITE is an *oil* paint giving a *glossy*, tile-like finish without the use of varnish. It will not crack or craze under the jar of machinery, and remains white longer than any other gloss paint.

Rice's was the pioneer "Mill White" paint. It made the reputation of the name "Mill White." The special process by which it is made cannot be used by any other paint manufacturer.

WRITE FOR BOOKLET AND SAMPLE BOARD
Ask for a copy of our booklet "More Light"

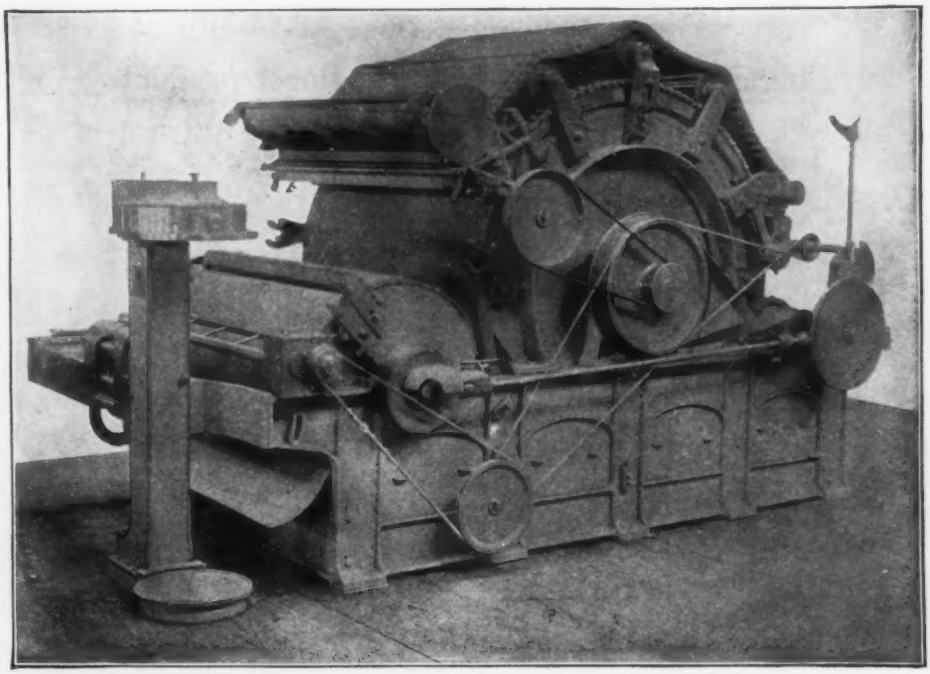
U. S. GUTTA PERCHA PAINT CO.

20 DUDLEY STREET PROVIDENCE, R. I.
20

MASON MACHINE WORKS

Taunton, Mass. **Greenville, S. C.**

Builders of
Revolving Flat Cards, Drawing Frames,
Spinning Frames, Looms, Dobbies, Etc.



Superior Loom Cranks for Repairs

By adaptation of

Josephy

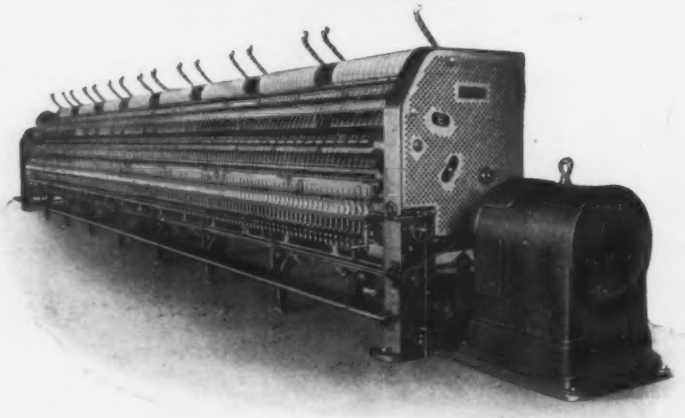
Cards & Ring Spinning Frames

for Wool, Cotton-waste, Vicuna-cotton, Flax-waste, Etc.

you get

highest output finest products

save on costs of production

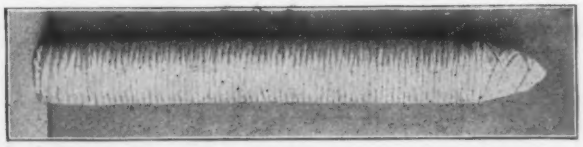


Call for information and estimate from sole agent for U. S. A.

FELIX BRECHER, 927 Lafayette Building, Philadelphia, Pa.

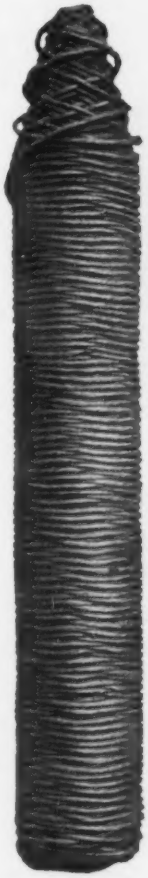
or directly from

G. Josephy's Erben, Bielitz, Austria

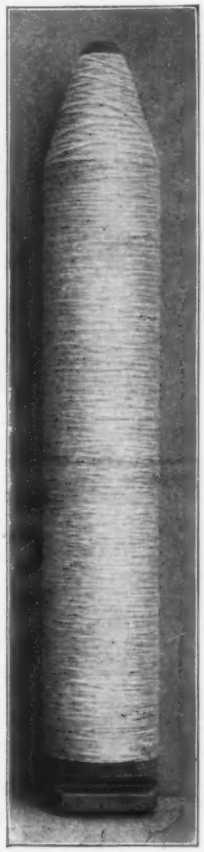


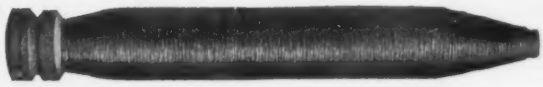
No. 2

No. 1 and No. 2—Cops to weave from inside seven-eighths to three inches diameter and up to seventeen inches long. Suitable for various kinds of coarse goods such as grass matting, cotton bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics such as wicks, belting, webbing, surcingles, halters, etc.



No. 3 and No. 4 Shuttle Bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of duck, upholsteries, tapestries, asbestos, ratana or any kind of fancy yarns for automatic or other looms.





No. 1 No. 4 No. 3

OSWALD LEVER CO., Inc.

Lehigh Avenue and Front Street, Philadelphia, Pa.

Builders of Textile Machinery

WINDERS ESPECIALLY

Another recent installation

400 "Ideal" Automatic Looms

on 5 harness sateens

These looms were installed as the result of a test during which the superiority of Stafford Looms over all competitors was clearly demonstrated

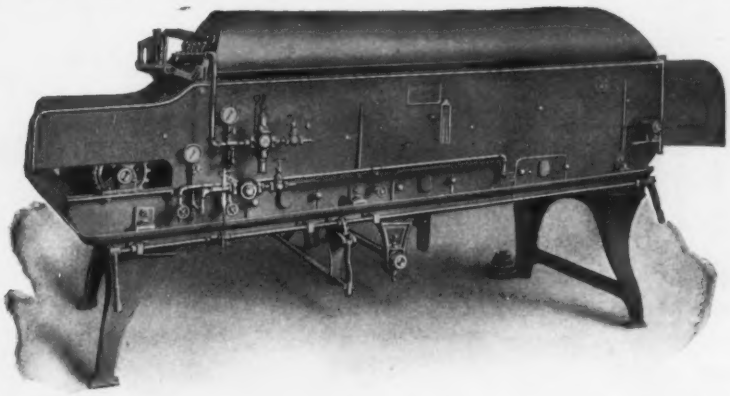
THE STAFFORD COMPANY

READVILLE, MASS.

FRED H. WHITE, Southern Agent - - Charlotte, N. C.

The Yarn Conditioning Machine

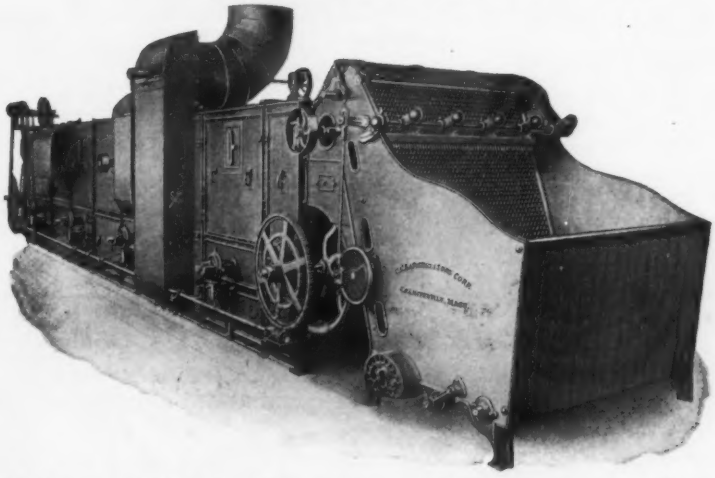
Sets the twist in your filling and overcomes kinky filling difficulties. It conditions without injuring the bobbins



The Sargent Drying Machines

Metal Construction
Asbestos Insulation

Scientifically designed for greatest economy in drying Cotton, Wool, Hair.



Wool Washers, Wool Dusters and Openers, Burr Pickers
Complete Carbonizing Plants
Automatic Feeds for Cotton and Wool

C. G. Sargent's Sons Corp., Graniteville, Mass.

Features of Excellence

Found in the

Maximum Efficiency with Minimum Speed

Economy of space makes for maximum production in any factory. Other things being equal, the machine or device which takes up the least amount of room commends itself to the progressive manufacturer.

The Turbo-Humidifier is not only more efficient than other devices of its kind but more compact. It occupies the minimum amount of space.

Does Not Interfere with the Light

As you know, a number of these Turbo heads are placed in various parts of the room. They are so small that they shut off very little light and cast no disagreeable shadows on the work. This is an especially valuable feature in low-posted rooms.

Turbo Humidifiers Are Easy to Clean

Their simple construction and plain exterior enable them to be cleaned quickly and thoroughly.

Workmen are apt to slight the work of cleaning when nooks and crannies make it difficult. There's no "gingerbread" work about the Turbo.

Big Savings in Production Costs

are effected by the Turbo-Humidifier. One of our customers writes:

"Since we have installed your system our production has increased over 10%."

Another states:

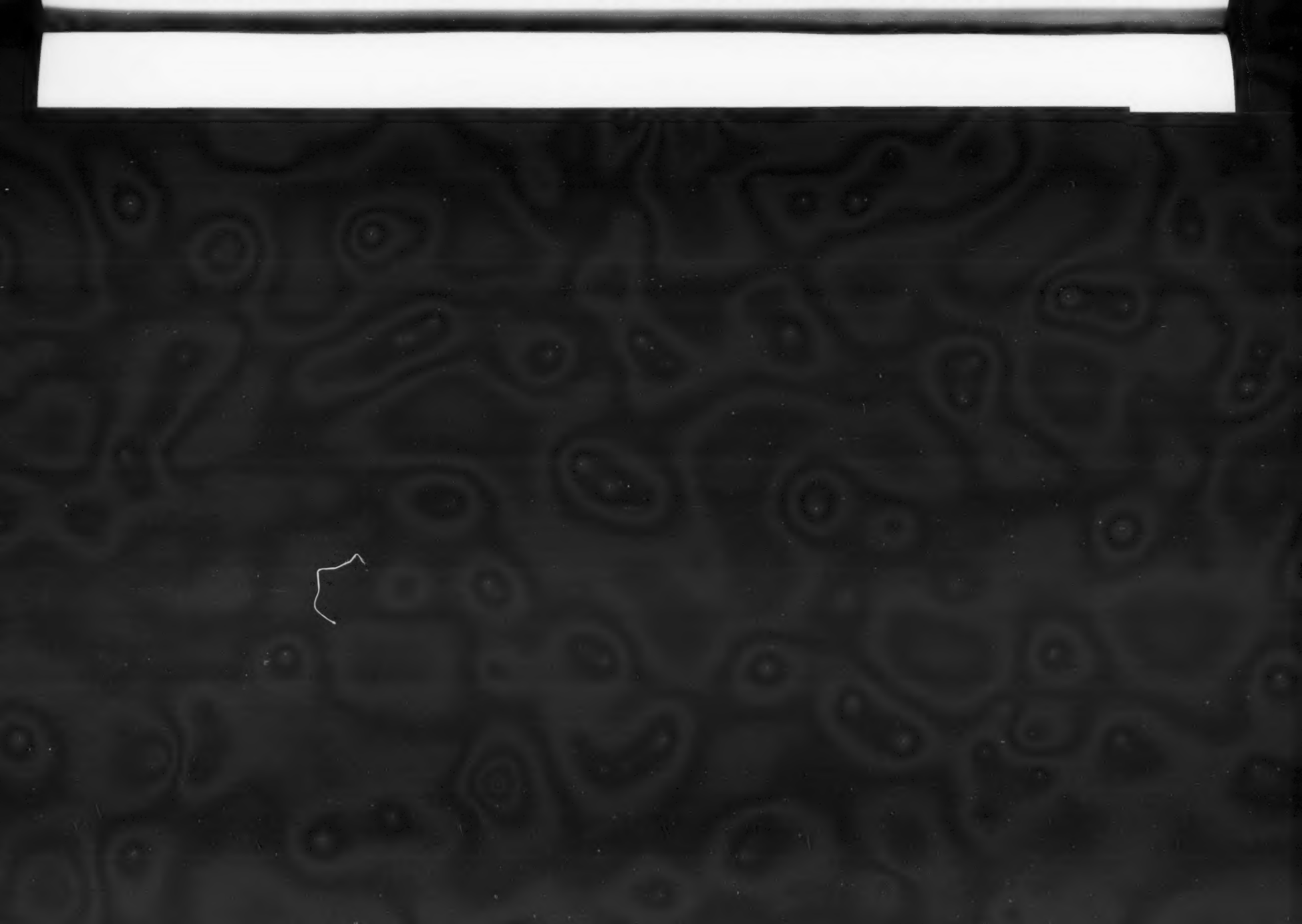
"Turbos increased our production the first week by 107 cuts of cloth—an increase of 3.85%." We can show you these letters and others of like nature.

Shall we send one of our engineers to see you? It will not obligate you in any way. Write for Catalog.

The G. M. Parks Company

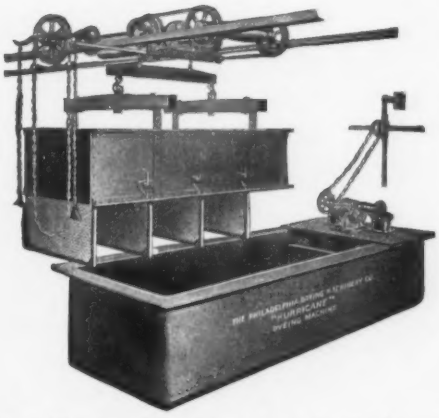
Fitchburg, Mass.

Southern Office, 32 West Trade St., Charlotte, N. C. B. S. Cottrell, Mgr.



Dyeing Machinery

For
Hosiery,
Skein Yarn,
Slubbing, etc.

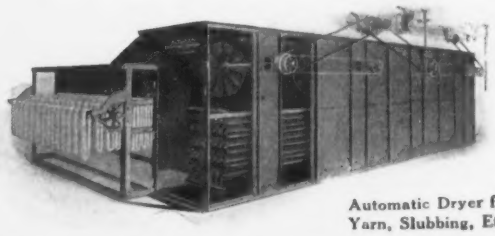


BETTER
Dyeing
AT
Less Expense

The BEST and Most Economical Dyeing Machine

Give us an Opportunity to Prove our claims

"Hurricane" Circulating Dyeing Machines are built in various sizes and types

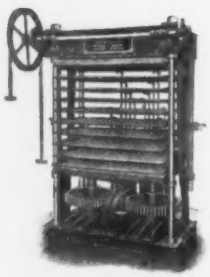


Automatic Dryer for Yarn, Slubbing, Etc.

COMPLETE EQUIPMENTS FOR
DYEING
SCOURING
BLEACHING
CARBONIZING

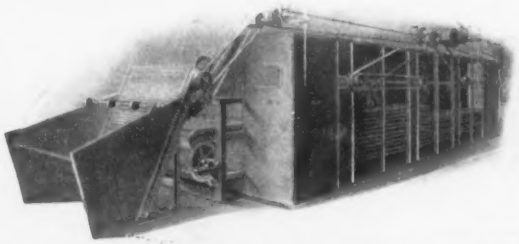
FIRE-PROOF DRYERS

Steel Construction,—Insulated with Asbestos



Power Screw / and Hydraulic / **PRESSES**

FANS
MOTOR
AND
BELT-DRIVEN



AUTOMATIC STOCK DRYER
(With Sectional-Continuous Conveyor)
For Cotton, Wool, Hair, Rags, Etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works:
6721 Germantown Ave., Philadelphia, Pa.

Boston Office:
53 State Street

AN OPPORTUNITY

For All Manufacturers of

Textile Machinery, Mill Supplies and General Textile Products

To show their line and come in direct contact, at a small cost, with many thousands of manufacturers and mill owners,

BY EXHIBITING AT

THE

FOURTH NATIONAL TEXTILE EXHIBITION

Mechanics Building, Boston, Mass.

APRIL 27 TO MAY 2, 1914

Under the auspices of

THE TEXTILE EXHIBITORS' ASSOCIATION, INC.

Facilities will be furnished to display machines in operation. You are urged to investigate.

125,000 Square Feet of Exhibition Space

WRITE NOW FOR INFORMATION TO

CHESTER I. CAMPBELL, Secretary and General Manager

5 PARK SQUARE, BOSTON, MASS.

THOMAS LEYLAND & CO.

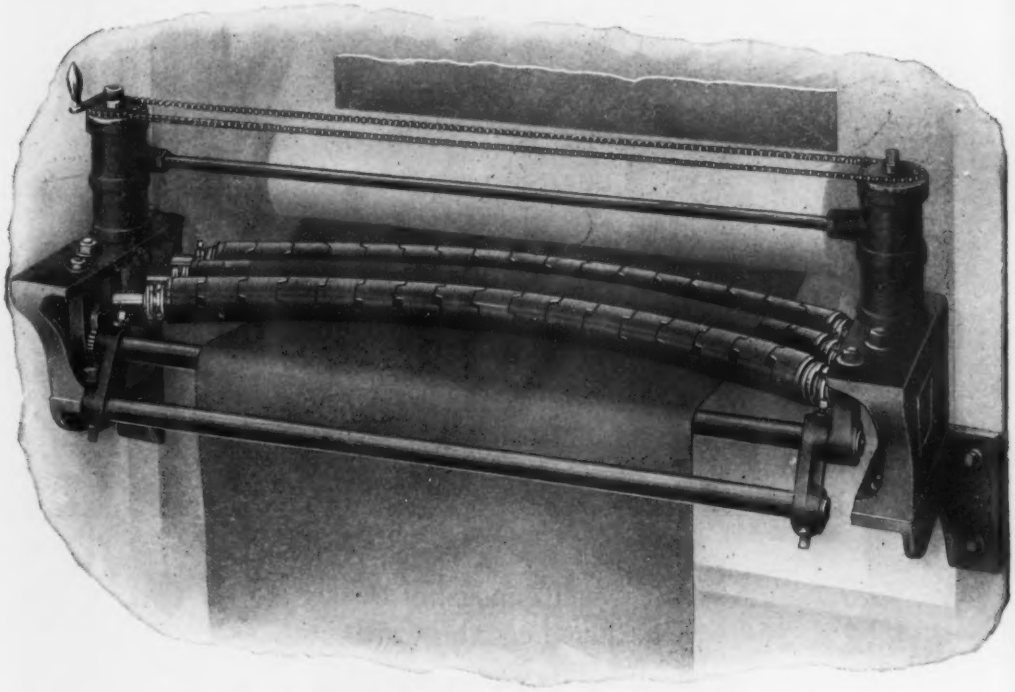
60 India Street, Boston, Mass.

F. T. WALSH, Manager

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander

PATENTED

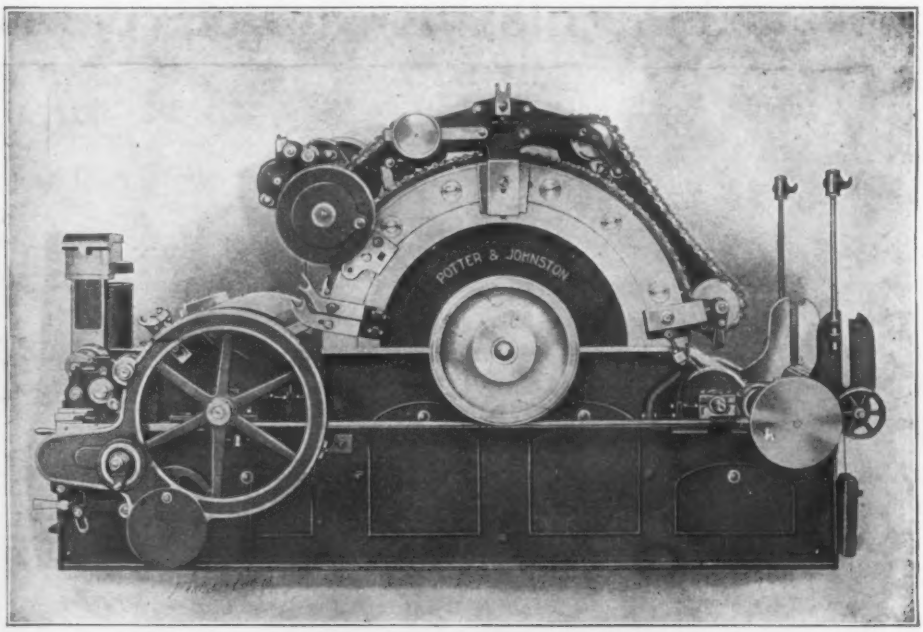


Expander attached to Calendar showing Regulating Motion and Adjustable Tension Bars

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

WORKS AT READVILLE, MASS.

Cotton Machinery by Specialists



Notice Small Amount of Belting
Required on This Card

Potter & Johnston Machine Co.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Cotton Machinery by Specialists

Pickers and Revolving Flat Cards

POTTER & JOHNSTON MACHINE CO.

Pawtucket, R. I.

Drawing and Roving Machinery

WOONSOCKET MACHINE & PRESS CO.

Woonsocket, R. I.

Ring Spinning and Twisting Frames

FALES & JENKS MACHINE CO.

Pawtucket, R. I.

Spoolers, Winders and Reels

EASTON & BURNHAM MACHINE CO.

Pawtucket, R. I.

Warpers and Beamers

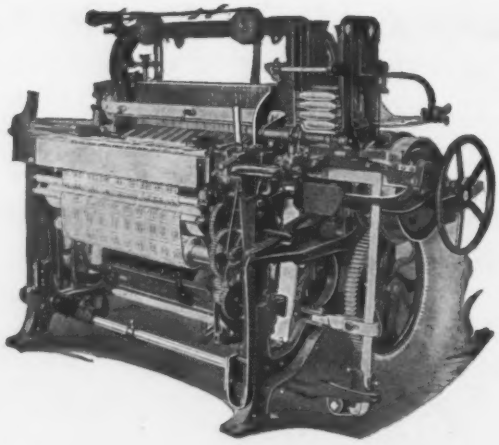
T. C. ENTWISTLE CO.

Lowell, Mass.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

WORCESTER, MASS.

Providence, R. I. Philadelphia, Pa.

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

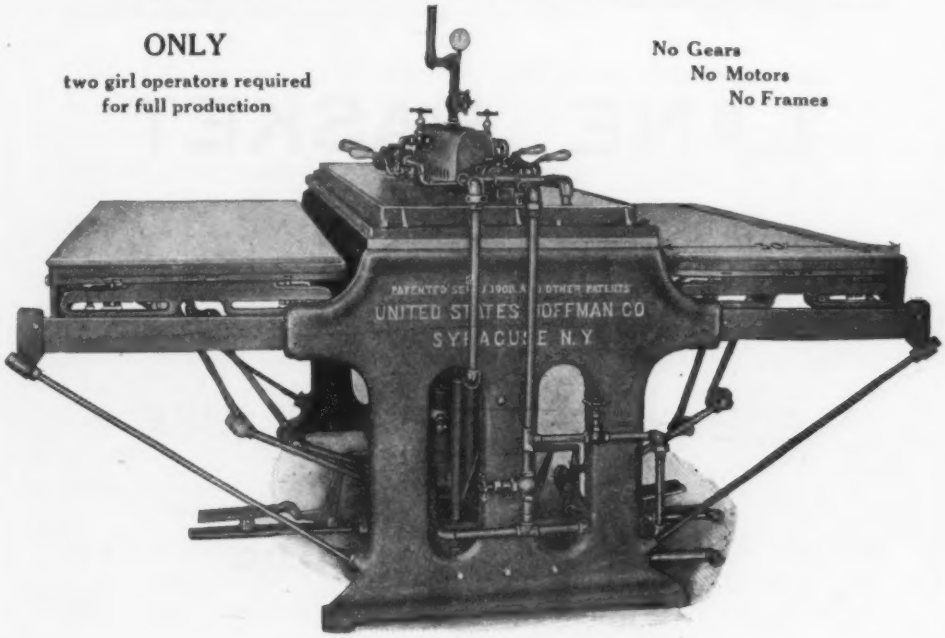
The "HOFFMAN" "FFF" Underwear Press

is the only press on the market giving the maximum amount of efficiency, both in quantity and quality of finish

STEAM HEATED HEAD AND BUCK. 72 inches long

ONLY
two girl operators required for full production

No Gears
No Motors
No Frames



"HOFFMAN" "FFF" Underwear Press

LIVE, DRY steam brought in direct contact with the garment is what gives it the superior finish, not gotten by the use of other pressing devices.

United States Hoffman Co.

SYRACUSE, N. Y.

Write for information and terms.

FIG. 20.
Extra heavy, best quality cotton duck.
Leather binding.

THERE
IS A

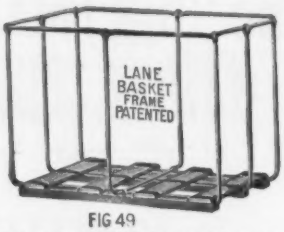


FIG 49
Lane indestructible frame with renewable hard wood shoes.
Made also with iron shoes

LANE BASKET

OR

TRUCK

FOR YOUR ESPECIAL USE

WRITE FOR CATALOG

MANUFACTURED BY

FIG. 22.
Round taper style.
For bobbins, waste, etc.

W. T. LANE
& BRO.

POUGHKEEPSIE
N. Y.

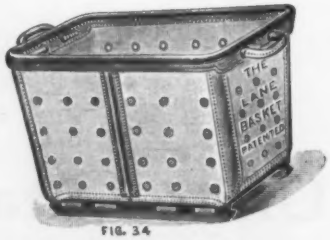


FIG. 34
The Lane Basket
is a long-lived, quick steamer.

The Most Useful Power for the Least Money---From Any Source

Comparing the mechanical lineshaft drive from engine with the G–E individual motor drive, brings out general truths applicable to every industry. Every man wanting more power, or desiring to pay less for power, should read these comprehensive facts:

More power can be generated from a given amount of coal, over extended periods with less maintenance, by using a Curtis Steam Turbine than with any other power equipment. You get maintained efficiency without constant valve grinding and repairs due to many moving parts.

More useful power can be generated from a given amount of water, oil, sun or wind power where the power is to be conveyed any considerable distance, by G–E generators than with any other equipment. More power can be obtained at the place where it is to be used with electric transmission, if the distance is considerable than with any other form of power transmission. This is due to the high efficiency and long life of G–E generators coupled with the elimination of power losses in transmission due to steam condensation, lineshaft friction and belt slippage.

It will be profitable for you to consult us. The assistance of any part of our organization in solving your power problems is extended to your local power company, or our nearest motor agency.

General Electric Company

Largest Electrical Manufacturer in the World

General Office: Schenectady, N. Y.

Address Nearest Office

Atlanta, Ga.
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Toledo, Ohio.
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For Texas, Oklohoma and Arizona business refer to Southwest General Electric Co., (formerly Hobson Electric Co.)—Dallas, El Paso, Houston and Oklahoma City.

For Canadian business refer to Canadian General Electric Company, Ltd., Toronto, Ont. 4378

OUR NEW

Hand-Threading Shuttle

Is the Simplest—Most Effective and Most Quickly Threaded Shuttle Made

NOTE THESE POINTS:

¶ Can be operated with the finest silk or the coarsest filling. ¶ Will not unthread when the yarn "balloons." ¶ Provision is made for easy removal of lint that may accumulate in the threading device. ¶ Their is room for the insertion of felt for tension purposes.

¶ It complies with the Massachusetts sanitary shuttle law, and as other states are likely to enact similar laws, it is well to anticipate trouble by adopting this new shuttle.

Trial orders solicited.—Satisfaction guaranteed.

Paper Cop Tubes Cones and Shells

Send your samples and we will quote prices on any lot desired

Shuttles and Shuttle Irons

For All Textile Purposes

American Textile Specialty Machinery Co.

670 Eddy Street - Providence, R. I.

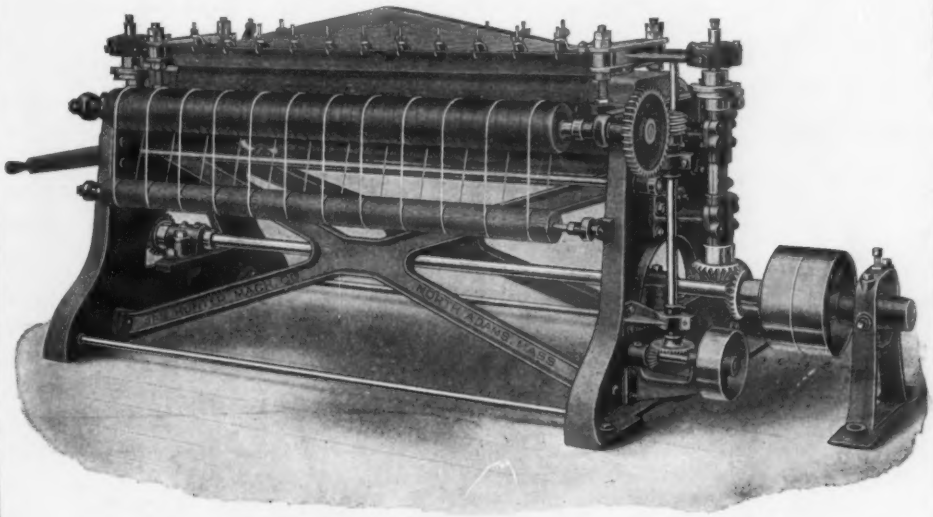
13th Street and Boulevard, Long Island City

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

CHINCHILLA MACHINE *Bulletin No. 76*

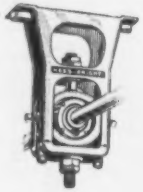
The Hunter CHINCHILLA, NAPPING OR RIPPLING MACHINE



FOR RIPPLING, WAVING OR CURLING THE NAP ON RAISED FABRICS

BALL ~ BEARINGS

HB DWF



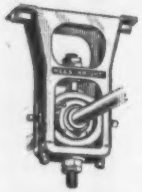
The Hess-Bright Manufacturing Company

Pioneers in the introduction of Annular Ball Bearings

Most extensive resources and plants in existence devoted exclusively to ball bearing manufacture

Main Offices and Plant No. 2 on line of Penna. R. R. to New York

No. 27 E. Erie Ave., Philadelphia, Pa.



A Line in Your Plant is a Convincing Argument

PHILADELPHIA	NEW YORK	CHICAGO
666 North Broad Street	1974 Broadway	1800 Michigan Avenue

High efficiency from workmen in Textile Mills demands protection to all their senses

Annoy or hurt any of your five senses and you become less efficient. Here is the way it works out:

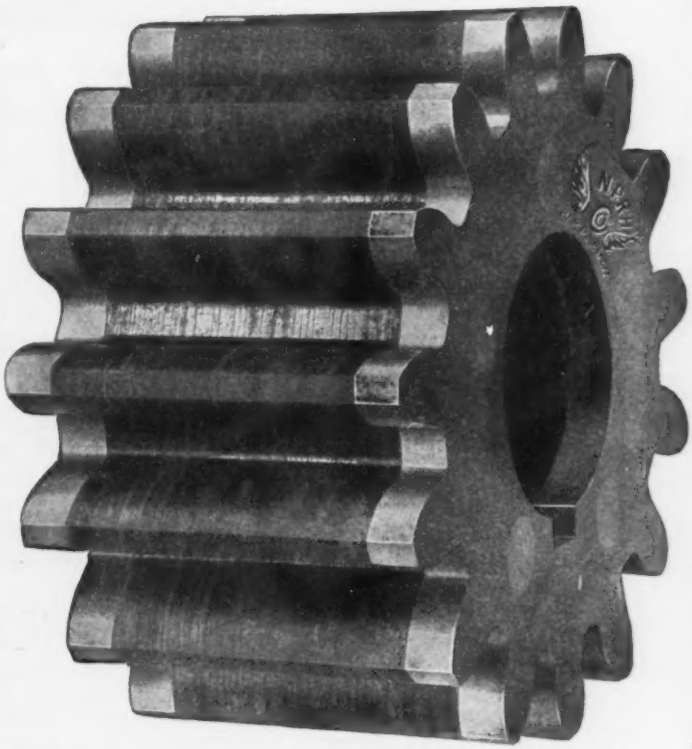
Sight: Go blind and you are badly handicapped—nobody denies that.

Feeling: With the headache, the itch, a pinching shoe, etc., you work less than without.

Taste: With that "dark brown" or any other bad taste in your mouth, your thoughts go to your stomach. Work can't command right attention.

Smell: In a room filled with bad odors, you think most about fresh air. You want to get out, not work.

Sound: With unnecessary monotonous noises, you are disgruntled, apt to make mistakes, **and the nerve strain dims all the other four senses.**



This is neither guesswork nor theory. You know as well as we that quiet is of great value in any textile mill, that freedom from gear noises is highly desirable.

New Process Noiseless Pinions are therefore no more a luxury than an **absolute necessity,** but they are a powerful factor in providing for higher efficiency.

The silencing of noisy metal to metal gears is assured wherever a New Process is substituted for the metal pinion. The small expenditure involved couldn't be made to better advantage.

Ask for our book, "Noiseless Gear Driving."

NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

N.P.R.H. **NEW PROCESS GEAR CORPORATION** N.P.R.H.

SYRACUSE, N.Y.

Canadian Agents: Robert Gardner & Son, Ltd., Montreal

Starch

THE particular case of your own mill needs careful study to determine what starch is best suited to *your* SIZING and FINISHING problems.

We have reduced the manufacture of starches for textile work to a science by years of factory investigation and laboratory research. We are ready to take up the special case of your mill and point out to you what starches are most adaptable and reliable for your purposes.

Six years of careful investigation of conditions in the cotton mills of the country has taught us the needs of the trade.

Six years' research in the best equipped Starch Laboratory in America has put us in touch with starch chemistry.

Six years of manufacturing, with cotton mill problems in mind, has produced our special Brands of Textile Starches.

We want to send our special starch expert to your mill. We want him to go into the matter of sizing with your boss of slashing—check up your sizing processes—find out whether you are now using the starches that will insure you the most efficient and economical results.

This special starch expert service is absolutely free—send us a sample of the starches you are using. We will give you an exact analysis of them and send our practical man to study your needs. Write a letter now to our Mill Starch Department.

Corn Products Refining Company
NEW YORK

Starch

G&K 1851

Educational Talks on Leather Belting.

WHAT CONSTITUTES GOOD LEATHER BELTING

FIRST: ***Leather,*** possessing in the highest degree possible the following characteristics:

Good driving surface, to enable the belt to operate under minimum tension.

Firmness, that the belt may remain straight, run true on the pulleys. ***Pliability*** that it may hug the pulley closely, securing a large arc of contact.

Little stretch, that it will seldom need to be shortened. ***Elasticity,*** that it may easily take up and let go its load as it travels round the pulley.

Good tensile strength, that it may carry its load without breaking.

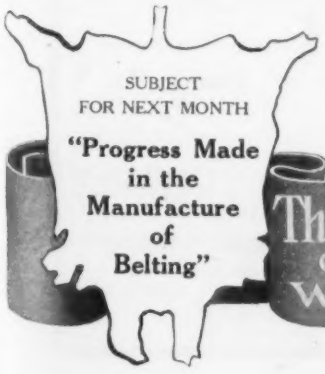
Resistance to external conditions, such as heat, moisture, chemicals, etc., that it may do its work in any place, at any time, enduringly.

SECOND: ***Cement*** of the highest quality.

The ***cement must be powerful,*** elastic, and immune to all the destructive forces that leather itself is able to withstand. As a matter of fact the cement when properly applied becomes to all intents and purposes a part of the leather itself.

THIRD: ***Workmanship*** and ***inspection.***

Careful and ***skillful workmanship*** should go into every process of construction. ***Rigid inspection*** of each operation is absolutely essential.



In short, high grade leather belting can be obtained only from leather properly tanned, curried, and finished; and that leather properly cemented with a suitable cement, all involving careful construction and rigid inspection of every process.

The GRATON & KNIGHT MFG. CO.
Oak Leather Tanners and Belt Makers
WORCESTER, MASS., U.S.A.

How much coal Do You Waste By poor power Transmission?

Power experts agree that in the average plant only 40% to 50% of the coal pile is eventually employed in running the machinery. The rest is lost.

Inefficient pulleys, or those carrying unnecessary weight, are among the large contributors to power "leakage" and coal waste.

"American" Steel Split Pulleys

Perfect in Principle Powerful in Performance

are the original steel pulleys and embody the latest improvements founded upon correct basic principles. On such a foundation is built the "American" pulley's title of "The Standard of Pulley Efficiency."

"American" pulleys are made in diameters of 3 to 60 inches inclusive.

Discuss your pulley problems with the nearest "American" dealer or ***write for "Factors of Energy"***— a useful, little book.

Patented

THE AMERICAN PULLEY COMPANY

OFFICE AND WORKS: PHILADELPHIA, PA.

Warehouses: New York, Cor. Grand and Greene Sts., Boston, 165 Pearl St., Chicago, 124 So. Clinton St.

DEALERS EVERYWHERE

The SAECHSISCHE WEBSTUHLFABRIK

(LOUIS SCHOENHERR)

Chemnitz, - - Saxony

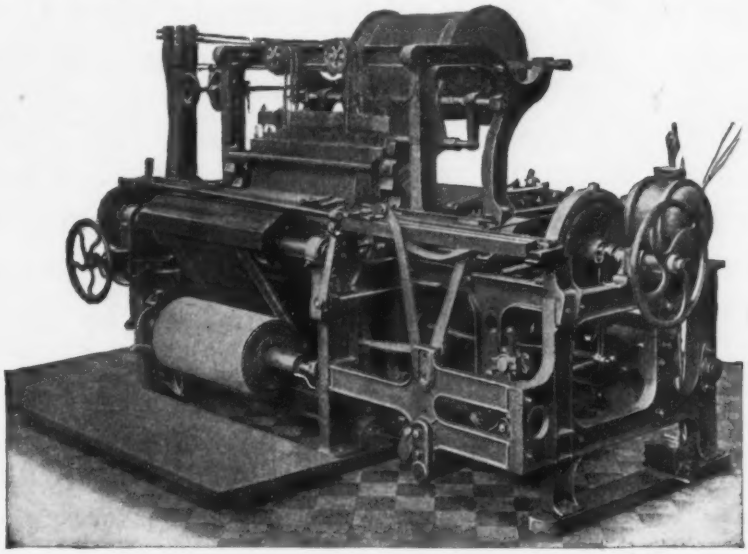
wishes to announce that they have appointed MR. A. W. BUHLMANN, Textile-Engineer of New York, as their sole representative for the United States of America and the Dominion of Canada.

A. W. BUHLMANN

Textile-Engineer

200 Fifth Avenue - - New York

takes pleasure to introduce the SAECHSISCHE WEBSTUHLFABRIK, (Louis Schoenherr) of Chemnitz, established 1851, employing 1600 people. This concern has built, sold and shipped one hundred and twenty-five thousand (125,000) looms.



LOOMS

for Tapestry and Brussels Carpets and Rugs, Wiltons, Axminsters and Moquettes.

Schoenherr looms are backed by an experience of over 60 years of loom building.

Get Acquainted **Consult Me**

Winders–Spoolers–Beamers

Warpers and Kindred Machinery in their relation to fabrics

EFFICIENCY of Construction gives Efficiency of PRODUCTION. Skill to construct fails when ability to manipulate is lacking. Conditions are multifarious and our REPUTATION for knowing what to do at the right time will save money to the users of our machinery.

Particular attention is directed to our SPECIAL MACHINE for RE-WINDING to overcome the loss of defective spinning bobbins. We have a special rapid producing machine to rewind on to the same bobbins for cotton and worsted.

Special winding for ARTIFICIAL SILK to wind from skein to knitting bobbins for PLATING work.

OUR GUARANTEE applies to all classes of machinery which we build for general use in textile mills.

All inquiries cheerfully answered

Jacob K. Altemus 2824 N. Fourth St. Philadelphia, Pa.

SMITH, DRUM & CO.

"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

HOSIERY

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

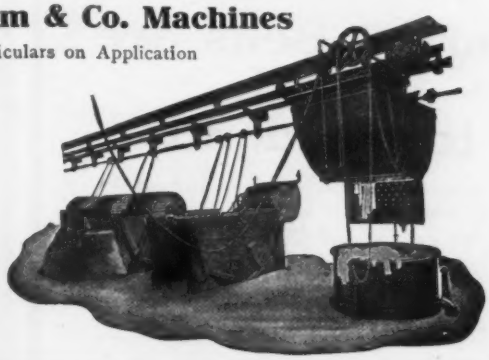
SAVE LABOR and **DYE STUFF** and do **BETTER WORK**
in your dye house by using

Smith, Drum & Co. Machines

Full Particulars on Application

Coral and
Cumberland Streets,
Philadelphia,
Pa.

Southern Agent
H. G. MAYER
Realty Bldg.,
CHARLOTTE, N. C.



LAWSONS

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery
for the Manufacture of
Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machine.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

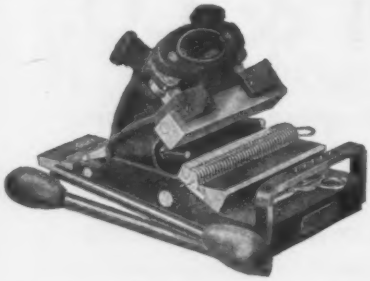
Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.



Parted Belts are Death to Dividends

Lost minutes are lost dollars. Cut down that loss by using the

"Clipper" Belt Lacer

TRADE MARK LACES IN THREE MINUTES

When a belt gives way—earnings stop—labor-pay goes on—fixed expense goes on.

You can cut these delays to three minutes or less, and minimize their frequency by lacing with the Clipper. And every belt thus laced will develop more power and last longer than belts laced in any other way.

Let us send you a list of textile plants using the "Clipper" System—*then ask them*—we will abide by the result.

The Clipper machine sinks a row of stout steel loops in each end of a belt. The ends are then joined over the pulley with our Fibro pin. You don't even have to remove the belt from the shaft as you carry this sturdy little machine to the belt—not the belt to some distant machine.

Clipper lacing is peculiarly adapted to Textile Mills because the hooks are sunk into the belts *flush on both sides* and belts may be run either side or crossed.

30 Day Trial Offer

Let us send you through your nearest dealer a No. 2 Clipper Machine on memo. bill $15.00 and $4.75 worth of our lacing hooks. Use them for 30 days. Then take your choice of returning machine and unused hooks to our dealer or paying his bill.

Write us so we can arrange this with your dealer.

Clipper Belt Lacer Company

1010 Front Ave., Grand Rapids, Mich.

Improve Your Product

BY USING

Morse Flexible Gearing

This form of transmission is **Durable, Silent, Highly Efficient,** provides a **Positive** speed ratio and runs with a **Minimum** amount of care and attention.

The **MORSE SILENT CHAINS** as shown above have proved our claim that they are the most **Durable** and most **Economical** Form of Transmission that can be installed to run on a **Positive Speed Ratio** from cylinder shaft to twist gears.

Improvement in the yarn and **Reduced** upkeep cost has always followed the installation of these drives.

In one large mill alone we have equipped over 350 frames.

We now have in successful operation drives transmitting an aggregate of over 500,000 H. P. Individual drives running from 1 H. P. to 2000 H. P. each.

Let us figure on some of your power transmission problems.

Our Bulletin No. 9B is particularly interesting.

MORSE CHAIN CO.

ITHACA, N. Y.

N. E. Branch, 141 Milk St., Boston

BAY STATE

HERE'S A YANKEE WHO FIGHTS

all forms of dampness in Wood, Plaster, Brick and Cement.

He hails from Boston, and his equipment is PAIL and BRUSH and plenty of

Bay State Brick and Cement Coating

It is the ideal protector against moisture, because—

It insures uniformity of shade

It does not destroy the distinctive texture of cement

It will prevent dampness above grade

It will prevent hair cracking on exteriors

It will safeguard metal lathing, steel and iron girders from disintegration

It is a fire retarder, consequently for mill construction, on interior woodwork, should reduce insurance

It will not chip, flake or dust off walls and ceilings, thus affording a maximum protection to fine fabrics, delicate machinery, etc.

It reduces your cost, as one coat in opacity equals two coats of lead and oil

It makes a splendid ground coat for an enamel finish

It acts as a reflector on area walls, etc.

Ask for Prices, Booklet K, etc.

WADSWORTH, HOWLAND & CO., Inc.,
Paint and Varnish Makers and Lead Corroders
82-84 Washington Street,
Boston, Mass.

New York Office, 101 Park Avenue at 40th St.

One Turn Of The Wheel, And

J-M FYRO FIRE EXTINGUISHER

Does The Rest

This extinguisher is positively the simplest and easiest to operate on the market. No mechanical force is required. No pumping—no unscrewing of nuts,—no tearing off of caps—no turning upside down. No delays of any kind. Simply hold in an upright position and turn the wheel. "J-M Fyro" does the rest.

The extinguishing fluid used in "J-M Fyro" is a liquid gas. When thrown on a fire it instantly volatilizes, forming a dense gas which displaces oxygen and extinguishes the fire. Tests prove that this liquid has **ten times** the fire fighting efficiency of the average chemical used in chemical extinguishers. It will extinguish any fire in its incipient stage and will put out many fires that chemicals only cause to spread and increase in volume, such as gasoline, naphtha, oil, varnish, calcium carbide, etc.

J-M Fyro fluid contains no moisture. Consequently there is absolutely no danger of short-circuits when used on electrical fires. It is non-corrosive and non-injurious, so cannot eat the internal parts of the extinguisher or injure the most delicate fabrics.

Our new booklet fully describes **every** valuable feature of this wonderful little fire fighter. **Write nearest Branch for a copy.**

H. W. JOHNS-MANVILLE CO.

Albany	Cleveland	Louisville	Philadelphia
Baltimore	Dallas	Milwaukee	Pittsburgh
Boston	Detroit	Minneapolis	San Francisco
Buffalo	Indianapolis	New Orleans	Seattle
Chicago	Kansas City	New York	St. Louis
Cincinnati	Los Angeles	Omaha	Syracuse

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED
Toronto Montreal Winnipeg Vancouver

2105

Put Your Pumping Problems Up to Our Engineering Department

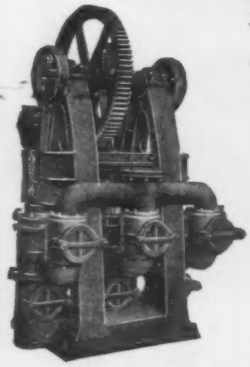


Fig. 1128
For Pumping Size

Our engineers are experienced in handling every pumping problem of the textile mill. This experience is placed freely at your service whenever you have any pumping problem to solve.

We want an opportunity to consult with you on your next pumping requirements.

Write for bulletins which give complete specifications on pumps for every service.

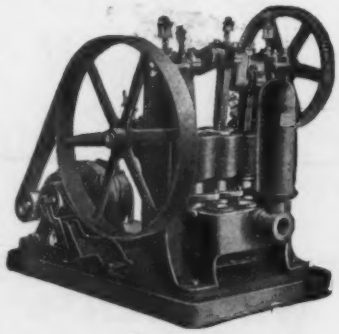
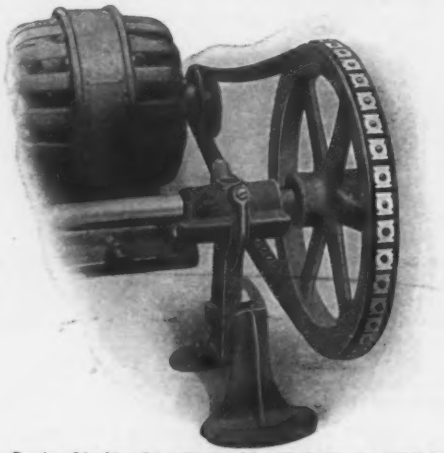


Fig. 1009
For General Water Supply Service

THE GOULDS MFG. CO.
LARGEST MFR. OF PUMPS FOR EVERY SERVICE
62 W. FALL STREET - SENECA FALLS, N. Y.
Branches and Agencies in Principal Cities

Peerless V Silent Chain Drives



Sewing Machine Line Shaft with 2 H. P. Peerless V Belt

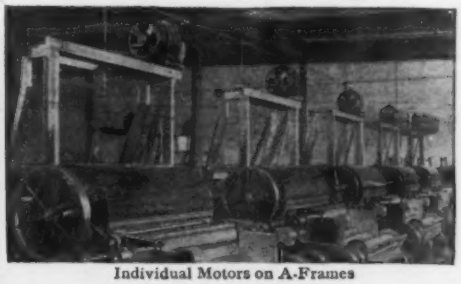
Are absolutely noiseless in operation. Can be operated on very close centers. Are not in any way effected by moisture, dust, grit or lint. And owing to the principle of the wedge being fully utilized, slippage is avoided, making a positive drive.

If you are bothered with transmission troubles send for full information and let us solve them for you.

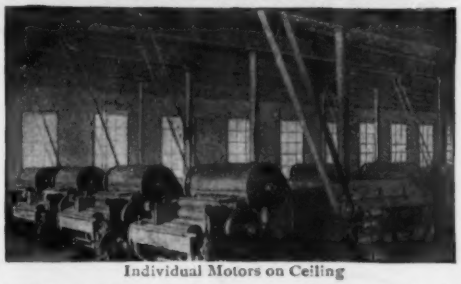
PEERLESS V BELT CO.

NEW YORK CEDAR RAPIDS, IA. CHICAGO

Individual Motors on Beater Shaft



Individual Motors on A-Frames

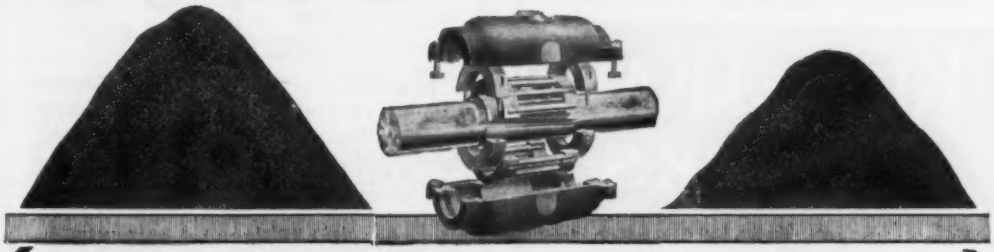


Individual Motors on Ceiling

Individual drive of pickers gives maximum production and best cleaning at lowest cost.

"Textile Quarterly" No. 5 tells you which one of the motors shown is best suited for *your* requirements.

Westinghouse Electric Manufacturing Co.
East Pittsburgh, Pa.



YOUR COAL PILE AND SELLS BEARINGS

The keynote of modern efficiency is that it is just as important to save money on operating costs as on raw material. Experience proves that SELLS Roller Bearings would save 25% to 50% of your friction load.

We realize, of course, it is hard for a non-user to understand that so much saving is possible with

SELLS ROLLER BEARINGS

so instead of making a lot of general claims, we want to send you a bundle of letters written by present users of the bearings, telling just what has been accomplished in *their* plants.

One saved $960 the first year on an investment of only $500. Another tells us that SELLS Bearings have reduced the cost of power fully 25%, and so on.

Would you like to read these letters from users. We have them in convenient form, and will send them on request.

Royersford Foundry & Machine Company, 56 North Fifth St., Philadelphia

Power Transmission Machinery Punching and Shearing Machines Emery Grinders
"Rollerine" is the Name of a High-grade Lubricant we sell.

For Your Convenience

Gentlemen: — You may send me that bunch of letters, without obligating me.

Name .....
Firm .....
City and State .....

T.W.R. 11-13

Truck ability proved in cross country runs

The Paramount Knitting Company of Waupun, Wisconsin, uses its 3-ton Kissel-Kar Truck almost exclusively in cross-country work. The roads travelled are mostly unimproved and to cover the territory requires a sturdily constructed truck with a powerful motor.

The KisselKar Truck fulfills its mission in this case to the enthusiastic satisfaction of the Paramount Knitting Company. It is the same story with textile manufacturers and in kindred lines wherever wisdom has stepped in and dictated the selection of KisselKar Trucks.

KISSELKAR TRUCKS

SIX SIZES

1500 lbs., 1, 1½, 2½, 3½, 6 tons

There are four all important elements to be considered in the selection of a motor truck. 1st—the construction and *record* of the truck. 2nd—its adaptability to the duty required of it. 3rd—the permanency and responsibility of the makers. 4th—the facilities to give thorough service.

Investigate the KisselKar Truck and the written KisselKar Service Guarantee to owners. Write for illustrated portfolio.

Kissel Motor Car Company

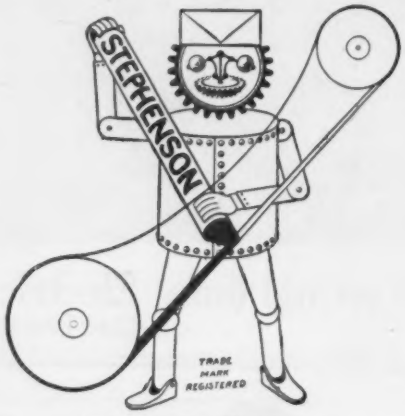
528 Kissel Ave., Hartford, Wis.

New York, Minneapolis, Chicago, Philadelphia, Milwaukee, Los Angeles, San Francisco, Oakland, Dallas, Boston, St. Paul, Kansas City, and over 300 other leading points.

STEPHENSON

Bar Belt Dressing Prevents Waste of Power and Fuel

Because it stops the belt from slipping and causes it to transmit all the Power without being made so tight as to cause unnecessary friction.



This Registered Trademark Is Your Protection

It appears on each stick of Genuine Stephenson Bar Belt Dressing—the dressing that has held to its uniform quality for 23 years.

This belt dressing surpasses liquid preparations, for there is absolutely no waste in applying it to the belt, and it is put up in sticks or solid form, so that it can be carried about in the tool-box. For these reasons—

1 Pound Lasts as Long as 2 Pounds of Any Liquid or Semi-Liquid Dressing.

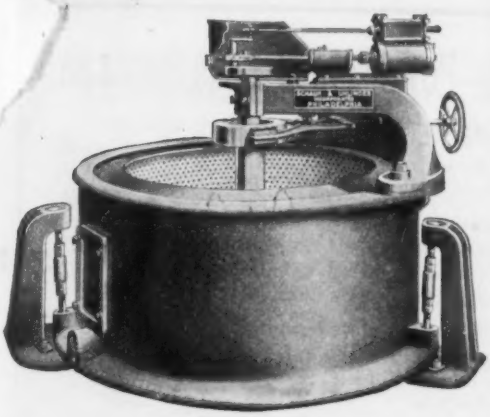
There are two brands, Red Label for leather belts, Green Label for rubber, canvas, or balata belts.

Prices, literature and sample sent to any mill on request.

Stephenson Mfg. Co.

Main Office and Works,

Albany, N. Y.



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Where steam pressure is convenient this direct-acting, top-engine driven Schaum & Uhlinger Hydro-Extractor has in hundreds of cases given our customers satisfactory service.

Simple, complete in itself, this extractor is ready to operate the moment steam is turned on—no shafting, belts or gears to be considered.

Schaum & Uhlinger Hydro-Extractor

An engine connected directly to the basket shaft quickly develops full speed, and will operate satisfactorily on 40 to 80 lbs. pressure. It is stopped just as quickly by means of a powerful toggle brake.

Six sizes of basket,—30, 36, 42, 48, 54 and 60 inch.

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IF your men can shove an 800 lb. case in place with one hand, don't you think they can stack much more material in the course of a day than if they had to lift it by main strength? They can.

Revolvator users often say that two men and a Revolvator can stack more material in the course of a day than can from five to seven working without one. This pays for the machine in a few months.

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More Space—Fewer Men—Less Damage

Don't these three factors have a big effect on storage costs?

More Space—because boxes, bales and goods of any kind can be piled clear to the ceiling in a systematic manner.

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ECONOMY·STEEL TIERING·MACHINE

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A NEW METHOD for both Straight Cutting and Pinking Samples

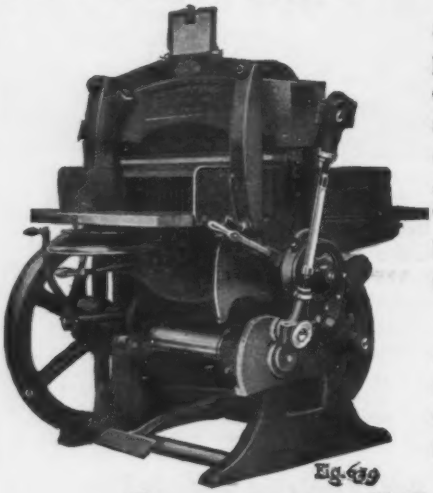
Fig. 639

at a great economy of time and cloth is possible on the NEW OSWEGO AUTOS, equipped with back gauge size duplicating attachment and any length of iron back table desired, and other equipment especially adapted to each case for the most rapid production. The instant adoption of the OSWEGO Cutters by many progressive American firms indicates their success on all kinds of textiles, etc.

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Oswego Machine Works

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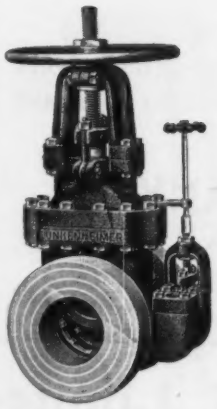

Made in **Standard, Medium, Heavy** and **Extra Heavy Iron** Body Brass Mounted Patterns, **"Puddled" Semi-steel** and **Cast Steel,** with either **Stationary Stem** or **Outside Screw and Yoke,** and **with** or **without By-pass.**

The valves are double seated, can be packed under pressure and all parts subjected to wear are renewable.

Lunkenheimer "Victor" Gate Valves are made entirely of Iron for use in handling cyanides and other acids which attack brass.

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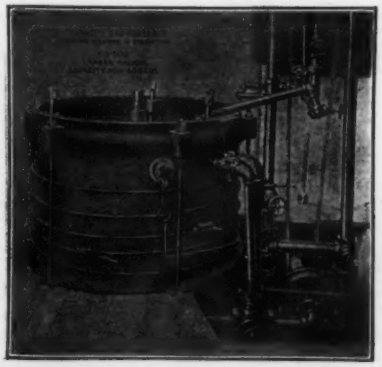

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In the Psarski Dyeing Machine

SAVES FIBRE

Saves Labor—Saves Dyes—Saves Drugs—Saves Steam—Saves Water

Sulphur—Developed—Vat Dyes
Done Equally Well

Raw Stock Dyeing—The cotton goes to cards in as good condition as directly from bales. Is not rolled into balls and strings.

Bleaching—Bleached and Washed PERFECTLY CLEAN—FREE FROM CHLORIN OR ACID. 3½ hours to batch. Is not pounded and twisted into practically waste.

Skein Dyeing—No Boiling Out—No Tangles—Yarns are left Smooth and in perfect condition for winding, knitting, etc.

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We also manufacture all kinds of Ball Trust Bearings and Journal Roller Bearings for all conditions and loads.

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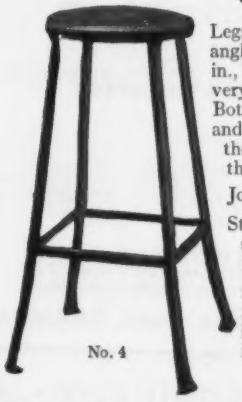
Standard Roller Bearing Company
Philadelphia, Pa.

The Angle Steel Stool

ALL STEEL! (with Steel Seat)



No. 4

Construction

Legs—high carbon angle steel, $\frac{1}{4}$x$\frac{1}{4}$x$\frac{1}{4}$ in., making them very rigid and strong. Bottom of legs strong and smooth, allowing them to set level on the floor.

Joints—Riveted.

Stretchers—Flat steel, $\frac{3}{4}$ by 3/16 inch.

Seat—Pressed Steel, highly finished enamel, 12 in. diameter.

Net Prices

Height	Per Dozen
20 inches	$11.00
22 inches	11.50
24 inches	12.00
26 inches	12.50
28 inches	13.00
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No. 4 with back is our No. 44. Add $4.00 per dozen to price quoted above.

We also make chairs and three legged stools.

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STEEL STOOL WITH SPRING STEEL BACK

This is Our Improved Modern Stool

Made with high carbon angle steel legs. It has a **13-inch hardwood seat,** mahogany stained, and the entire framework is nicely finished in dark green enamel. The backs are double braced and adjustable, with a simple motion they can be raised from 10 to 16 inches.

Frame construction same as No. 4.

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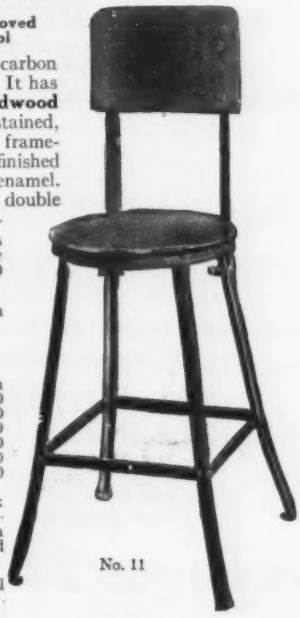
28 inches	18.00
30 inches	18.50

No. 11 without back is our No. 1. Deduct $4.00 per dozen from price quoted above.

Do you need tool trucks, racks or merchandise conveyors?



No. 11

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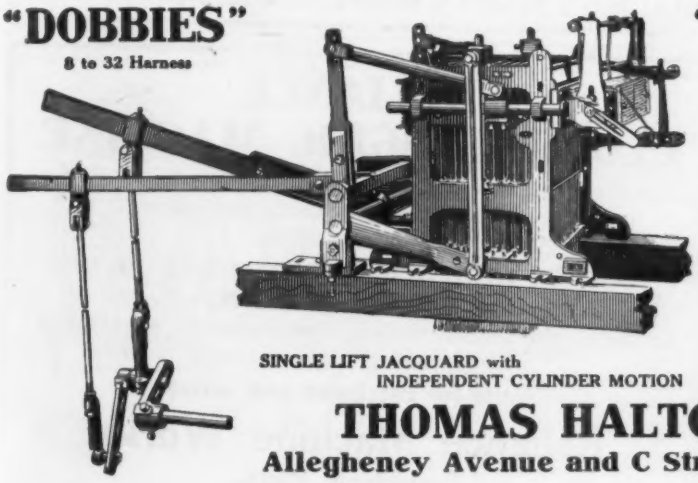
Angle Steel Stool Co., Inc., Otsego, Mich.

"DOBBIES"

8 to 32 Harness



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Scutchers	Washing	Sewing
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Stretchers	Folders	Engines
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Piece Dyeing	Steam Blowing	Folders
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ALBERT BIRCH, Textile Mechanician

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For shrinking woolen, worsted and cotton goods; drying oilcloth, or waterproof cloth, and curing rubberized cloth.

Can be attached to any machine or operated separately

In use by the United States Quartermaster department for shrinking uniform cloth.

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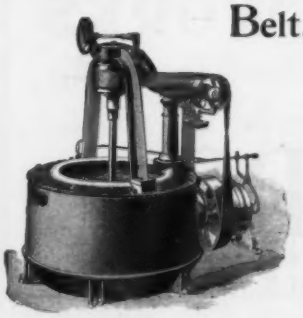
Belt, Engine and Motor Driven



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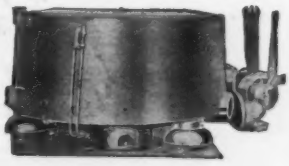
Reel Dyeing and Bleaching Machines Washing Machines



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10¼" High 1" Wick 2 Candle Power

DIETZ "WATCHMAN'S (Steel Clad) Lantern is strongly made with flat steel upright guards and skeleton base. It is fitted with a wick scraper by which the char can be removed from the wick without direct access to the flame. Fount is inserted through hinged top and *lantern may be locked to prevent tampering with the flame.* This lantern is recommended where the use of kerosene is forbidden. Holds sufficient oil to burn 24 hours.

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ESPECIALLY ADAPTED FOR MILL USE.

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The Murphy Automatic
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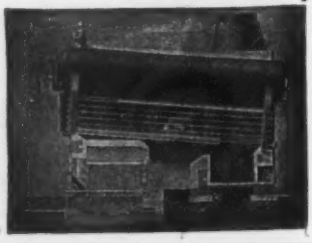
Burns Slack with Great Economy

The Murphy can be installed under any type of fire-tube or water-tube boiler and to units of any size.



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Keep your Dye House, Bleachery or Mill free from loose steam or dampness

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and you will get a better and bigger production, more efficient and contented employees—and bigger profits.

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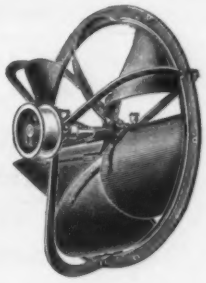

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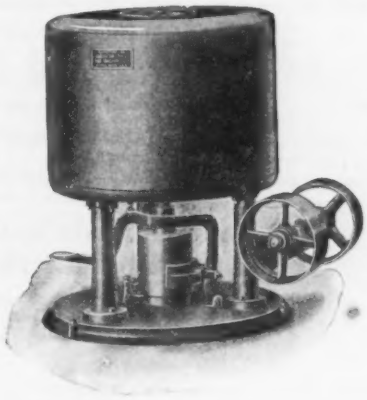
Time required to separate, from 5 to 8 minutes.

Save Oil and Pay if only 3 gallons per week are used.



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BOSTON
INCORPORATED 1864

The Textile Industry of the United States leads the world in the production of low priced colored cotton fabrics of great merit and intrinsic value for the masses.

ONE of the chief contributing causes for the large increase in the production of colored cotton goods in the United States is the introduction of the "Fast Colors."

It was only a few years ago that consumers were afraid to buy colored cotton goods especially in light shades, such as Blue, Helio, etc., because the colors would not stand up under laundering and exposure to light.

Those who purchased colored cotton goods bought chiefly the dark shades in the hope that the fading would be gradual.

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When Indanthrene dyed cotton goods began to appear on the market a few years ago the trade was naturally reluctant to believe that a really fast color for cotton had at last been found, but the consumers gradually saw the difference and began to realize that colored cotton goods were really worth while, since they could be produced in colors which would practically out-wear the fabric.

Gradually this feeling of confidence grew in the minds of consumers generally with the result that a large impetus was given to the colored cotton goods trade.

The end is not yet, but already

America leads in the use of Fast Colors; another reason why American goods merit the preference.

BADISCHE COMPANY

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TEXTILE WORLD RECORD

Published on the 12th of each month by

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A Complete Directory of Cotton, Woolen, Knitting, Silk, Flax and Jute mills of the United States and Canada, together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments; about 7,000 in all. Full information is given about each mill in almost every instance, viz., the name of the company or firm, names of officers, agent, superintendent, the character of goods made, the machinery equipment, i. e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct. All this and much other information contained in this book is arranged in a way to be instantly accessible.

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It contains **full reports of every knitting mill** in the United States and Canada, giving capitalization, names of the officers, including superintendent and buyer; kind of goods made; number of knitting machines, whether latch or spring needle; number of sewing machines; whether the mill dyes or bleaches or finishes; kind of power; number employed; selling agent; kind of yarn bought; lists of the jobbers, manufacturers' selling agents, commission merchants, department stores and large retailers handling knit goods and the name of the person in charge of the knit goods department. List of dyers, bleachers, finishers, printers, etc., making a specialty of knit goods work. Special copyrighted maps of the mill districts, showing the cities and towns where there are knitting mills. It is indexed so any town or mill may be quickly found.

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In the process of bleaching, impurities are removed, but of necessity other properties that impart smoothness and flexibility to the fibre are taken from the cotton.

In using Svelte Finish these latter properties are replaced in their purified state and give to the fibre that natural elastic feel that is so essential to the light weight goods of present fashion.

Applicable not only to straight cotton goods but also to silk effects.

JOHN P. MARSTON
SUCCESSOR TO
DANKER & MARSTON
247 ATLANTIC AVENUE
BOSTON, MASS.

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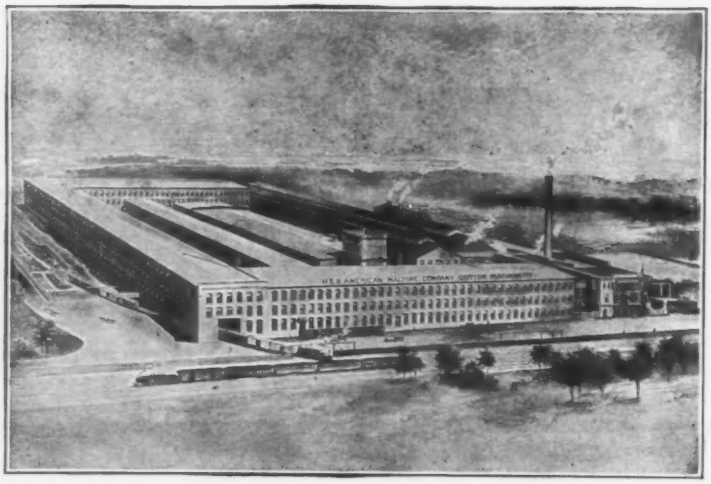
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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TEXTILE WORLD RECORD

NOVEMBER, 1913

Monthly Comment.

How Much is Too Much Sizing?

The cotton cloth paragraph of the new tariff provides that in determining the average yarn number "the weight shall be taken after any excessive sizing is removed by boiling or other suitable means". The word "excessive" in this clause will probably make it necessary for the courts to decide what constitutes an excess of sizing in cotton goods. It would have been better if Congress had adopted our suggestion regarding sizing as it was given last March, that is, without the word "excessive"? The limitation does not reduce the actual work of administration, because it is necessary to boil out a fabric in order to determine whether the amount of sizing exceeds the limit or not. The law, however, must be carried out, not as it should be, but as it is, and so the question arises, What is excessive sizing?

Eight years ago the Bureau of Manufactures at Washington received from its special agents, Burrill and Crist, in China, a large number of samples of cotton goods exported to the Chinese Empire from various countries. We obtained from the late Col. Carson, then chief of the Bureau, clippings from several hundred of these samples, which we analyzed by the "straight line" method, publishing the results in several issues of this journal, beginning with March, 1906. The Chinese use a large quantity of heavily sized cotton cloth. This fact was made plain by the samples sent from China to the Bureau, the percentage of sizing varying from 56.7 per cent. to none at all. The following table gives the results of our analysis of a number of the samples. also the average number of the yarn in the sized condition and after all of the sizing has been removed:

No.	Cloth	Sizing Per Cent	Average Yarn No. Sized	Boiled-off
99	White shirting, English	56.7	21.9	50.6
68	Printed T-Cloth, English	40.	27.4	45.7
79	Flannelete stripe	36.4	13.6	21.4
69	Print	35.	30.	46.1
L	Gray T-Cloth, English	32.5	17.7	26.2
9	Shirting, gray English	30.	24.5	35.
27	Flannel Stripe	27.4	18.7	25.7
20	Chintz printed, English	27.4	18.	24 8
5	Print	26.7	36.8	50.
71B	Cretonne, English	25.7	15.5	20.8
14	T-Cloth, Gray English	22.1	16.6	21.3
18	Jean Gray, English	21.6	19.7	25.1
K	Gray T-Cloth, English	21.4	18.9	24.
22	Lawn bleached	21.	63.2	80.
25	White lawn bleached	19.1	34.6	42.8
23	Lawn dyed	19.	60.9	75.2
72	Stripe shirting, English	16.7	22.8	27.4
81	Gray drill, Japanese	16.	13.3	15.8
17	Jean gray, English	15.	20.1	23.6
C	Hand-spun, Chinese	14.4	9.5	11.1
86	Sheeting, Japanese	11.	11.1	12.5
55A	Ticking dyed, English	10.5	22.6	23.2
93	Chinese cloth from foreign yarn	9.5	10.8	11.9
23	Lawn bleached, English	9.4	46.	50.8
80	Print, English	8.	41.4	50.5
44	T-Cloth, English	6.	15.5	16.5
94	Flannel, American	5.	10.3	10.8
8	Shirting, American	3.5	18.8	19.5

The effect that the removal of the sizing has on the Underwood duty depends on whether the resulting increase in the aver-

age yarn number places the cloth on a higher step of the stepladder scale of rates. It may easily happen that in one case the change in the yarn number caused by the removal of a large percentage of sizing may not affect the Underwood duty at all, while in another case the removal of a much smaller quantity of sizing may cause a change of the yarn number that would bring about a marked increase in the duty. This peculiarity is the result of the absurd stepladder arrangement of rates, and is well illustrated by sample 9 and 25 in the above table. The first, No. 9, an English shirting cloth, contains 30 per cent. of sizing, the tariff yarn number being 24 1/2s sized, and 35s boiled-off, both numbers calling for the same tariff rate. The second sample, No. 25, a lawn, contains 19.1 per cent. of sizing, the tariff yarn number being 34.6s sized, and 42.8s boiled-off, the sized number calling for a duty of 15 per cent. ad valorem, and the boiled-off number calling for 20 per cent. Even greater irregularities may be caused under the stepladder adjustment, which never should have been incorporated in the cotton schedule. Nevertheless, it is important that the question as to what is "excessive sizing" should be decided as soon as possible.

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A Law to Protect Original Designs

Most foreign countries have registration laws, which prevent unauthorized and indiscriminate copying, and this protection enhances the value of the manufactured articles as well as the demand for it.

In this country a manufacturer may produce an article of exceptional design and quality, but before he can get it fairly on the market, some unscrupulous and irresponsible competitor will copy it in a cheap product and offer it at a cut price, which immediately destroys the commercial value of the design.

Our present laws seem inadequate to prevent this and a good many feel that it is not worth while to go to the necessary expense, time, trouble and money to originate and bring out new designs only to have them stolen and appropriated to the benefit of another.

The present design patent laws, as interpreted and applied, are inadequate for various reasons. In order to get a patent, there must be some inventive feature. Many designs, while different in shape and ornamental effect, are held by the Patent Office and courts to display nothing more than the exercise of common artistic taste or genius and are not properly considered inventions and therefore not patented. These original designs have served to identify the product of a manufacturer and distinguish it in the trade and give it a commercial value. The very fact that a party copies it and counterfeits the design in cheaper quality shows that it has merit of commercial value.

The present copyright law does not cover the case. The trademark law, as administered, only recognizes words and symbols and such identifying marks to be registerable as trademarks and the commercial designs in question are not considered to come within the scope of the protection afforded by the trademark law.

The need of an adequate law to meet this situation has been recognized by several foreign countries, particularly Great Britain, which gives protection against unauthorized copying and permits manufacturers to register their designs. They may, if they so desire, for anything that American manufacturers can do about it, copy American designs and a new law, just passed by Congress, known as the "Kahn Bill," referred to in another place, has, under the guise of giving protection to the exhibitors at the Panama Exposition in San Francisco, given to all foreign exhibitors the right to register a design and American manufacturers are prohibited from manufacturing or selling goods of similar design in this country for a period of years

This has brought into greater prominence the movement inaugurated by the National Legislation League for the protection of commercial designs by registration. Many manufacturers are deeply and vitally interested in this movement, which aims to secure the enactment of a simple design regis-

tration law so as to give our American manufacturers the protection which was intended to be given by our present inadequate design statutes and put them on equal footing with their foreign competitors.

A convention of manufacturers, merchants and importers, interested in this subject, is to be held at the Hotel Astor, 44th St. and Broadway, New York City, on Friday, November 21st, at 2 p. m., to take some definite action and at that meeting it is intended that a properly drafted bill will be presented for consideration and ways and means for promoting the movement will be discussed. All interested are invited to attend.

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Compensation for Industrial Accidents

There is much to commend in the paper on compensation for industrial accident, read by Carl M. Hansen, secretary of the Workmen's Compensation Bureau at the recent meeting of the National Association of Cotton Manufacturers. He begins with this recognition of the necessity of a change from the old liability system to a system of compesation:

I shall proceed on the assumption that we are all agreed as to the desirability and necessity of substituting at the earliest possible moment our shop-worn liability system for a system embodying the compensation principle for work accidents without reference to negligence.

Further on he touches on the effect that past litigation over liability for accidents has had on the relations between capital and labor, and incidentally illustrates the injustice of the old system:

What effect has all the litigation in the past had upon the far too strained relations between what we usually term capital and labor? I am given to believe it has had a very direct influence, and shall briefly refer to it in passing.

Let us picture a family bereft of its provider through an industrial accident occurring in a mill or other working establishment. The children are young, and what they are told and accept at that age usually remains indelibly impressed upon their minds for the rest of their natural lives. In this case, no funds are left for their sustenance. The accident is one for which no legal liability exists against the employer. The widow and her friends not understanding this, however, blame the employer for her and her children's misfortune. They bitterly denounce and attack the employer in the presence of these children as being responsible for their plight, with the result that the children grow up imbued with an innate hatred of the employing class, and furnish in time splendid recruits for our already over-stocked army of labor agitators of the vicious type.

Having admitted the necessity for some system of compensation for industrial accident, Mr. Hansen compares compensation laws and state insurance, and comes out flat-footed in condemnation of the state system:

The political advocates of workmen's compensation laws having realized fully the bountiful harvest which will of necessity be reaped by them if they carry their ideas into effect, are persistent in associating such laws with a plan of state insurance. It is but natural that they should do so, because only if such a plan is adopted will the jobs and subsequent spoils accrue. We are told by these saviors of the country that the two are inseparable—that is, compensation laws and state insurance are dependent upon each other, when as a matter of fact they are not naturally related at all. We are further advised by these same gentlemen that other nations have found it necessary to adopt the socialistic program of state insurance in order effectively to carry out the intent of the laws.

He then gives his attention to the German method of state insurance, and, after calling two witnesses to testify against the German system, Dr. Ferdinand Friedenburg, and Dr. Ludwig Bernhard, professor of political science at the University of Berlin, reaches the following conclusion:

You will reach the conclusion that if politics has been able to exercise so detrimental an influence upon such a plan operated under the semi-military form of government in Germany, it needs no vivid imagination to picture what would be the result if a similar plan were adopted under our system of government. . . .

If you admit that the unprecedented intellectual, industrial and social development in this country is due to private enterprise, initiative, civil independence, freedom of thought, action and decision, your aversion to the expression "Monopolistic Compulsory State Insurance," with its inevitable "bureaucracy," must be positive and final, and you will demand that our governments, federal and state, confine their activities to the purposes of their establishment, namely, the protection of the rights accorded their citizens under the constitutions, and the consequent fostering, encouraging and regulating of our industries and commerce.

State insurance having been placed out of the question, Mr. Hansen outlines the four methods worthy of consideration for distributing the burden of compensation:

Self insurance, where the financial responsibility of the employer warrants it;

Mutual insurance under private management;

Mutual insurance, under supervision of a state official; and

Our long-adhered-to system of insurance through private stock companies.

The recommendation is made that these four systems be placed on an equality before the law:

In order to give the employer the widest possible latitude, and in order to attain the highest degree of efficiency, these four plans should be provided for, and as far as requirements are concerned, financially and otherwise, they should be put on an equal basis before the law.

Mr. Hansen does not go very far into an analysis of the comparative merits and demerits of these four methods, but turns to the argument "ad hominem":

We have now left for consideration the most important phase of the entire problem,—that of raising to a higher standard of safety and sanitation the equipment and methods of operation in the various industries, thereby lowering the subsequent cost. How can this most effectively be done? Here I contend, and actual results substantiate the contention, that stock companies have in the past and always will excel all other methods of insurance in this country in their effort to encourage and educate the employer and his employes in that respect.

He then touches on the prevention of industrial accidents, showing what the stock companies have done in this direction:

It is well known that only a limited number of industrial accidents can be prevented through mechanical safeguards. The vast majority of accidents are due to inherent recklessness in the individual workman. We cannot particularly blame that workman—he has been educated down to it, so to speak; it is no more his fault than it is his employer's, and his carelessless can only be eradicated by cooperative means. The solution lies in educating the rank and file of employes out of instinctive recklessness into intuitive caution. This is a big task, and the longer we wait the larger will it become. Therefore, now is the accepted time to commence constructive work.

The stock liability companies have realized this and accordingly are making ready to perform their share of the task. I do not wish to leave the impression with you that the stock companies are doing this for employers' and employes' benefits solely. No, they (like you) are in business to make money (even though but few of them have realized that ambition), but they believe from a careful study of the subject that it is going to prove as beneficial to them as it will to the rest of society. If they can successfully through the machinery of insurance prevent part of the loss itself, they feel they are rendering a greater service to the employer, employe and the nation at large than would they by paying a sum of money after the loss had occurred.

Toward the end of the paper there is this warning:

What would you gentlemen say if anyone proposed that all textile mills in this country suddenly should be taken out of private hands and placed under the control of political parties, the management to be delegated to the men who had shown greatest activity in the campaign of the party in power at that particular time? What would be the result in any other industry or commerce? Your answer must be "Impossible!" Still the very same thing confronts us in insurance. It is a science; it is largely a mathematical science; and unless the mathematical principle involved is correctly applied, chaos will be the consequence.

It would not be fair to criticise Mr. Hansen's paper from the standpoint of a comprehensive study of the problems involved in state insurance against industrial accidents, for the author does not offer it as such a study. It is an argument in favor of insurance through private stock companies. And so it implies no reflection on Mr. Hansen's effort to say that there are other sides of the problem to be heard from. We may admit the evils that may lurk in political control of insurance against industrial accidents; we may admit that the German system is not perfect, although it would require more evidence than Mr. Hansen has presented to warrant his sweeping condemnation; we may accept his statement of the merits of insurance through private stock companies; we may accept all these propositions, and yet be very far from possessing the necessary information to warrant a choice between properly regulated state insurance, of which the German method is the leading example, and the other schemes which Mr. Hansen mentions.

Mr. Hansen has presented his case well, yet, while making cursory references to it, he has failed to place the necessary emphasis on the underlying fact that the settlement of the problem involves a mutual compact between employers, employes and the consumers of the products of industry. In a broad sense the cost of any system of industrial compensation will be borne by the public. It is doubtful if there are any who possess the knowledge of this question that is necessary for a correct decision on the comparative merits and demerits of the different methods proposed for its solution. The need is for information, in order to reach a settlement with the smallest number of blunders, for blunders will certainly be made in dealing with such a complicated problem, involving so many conflicting interests.

Mill Stocks and Consumption of Cotton

The report of cotton consumed and on hand at the mills, issued by the International Cotton Federation and dated Aug. 31, includes reports from firms operating 129,895,651 spinning spindles out of a total of 143,452,659 spindles in all countries. The figures for the United States, supplied by the Census Bureau, are as follows:

STOCKS AT AMERICAN MILLS

Date	Returns, Spindles.	Bales on hand.	Bales used per week.	Stocks will last
Aug. 31, '05	23,687,495	776,801	82,288	9.4 weeks
Aug. 31' '06	25,250,096	688,312	94,413	7.3 weeks
Aug. 31, '07	26,242,000	996,000	95,904	10.4 weeks
Mar. 1, '08 est.	27,000,000	1,089,119		
Aug. 31, '08	27,846,000	596,000	87,981	6.4 weeks
Mar. 1, '09	27,846,000	1,831,800		
Aug. 31, '09	27,783,000	908,000	97,788	9.3 weeks
Mar. 1, '10	28,000,000	1,674,000		
Aug. 31, '10	28,349,000	518,000	90,519	5.7 weeks
Mar. 1, '11	28,500,000	1,525,000		
Aug. 31, '11	28,872,000	523,000	90,308	5.8 weeks
Mar. 1, '12	29,522,597	1,543,000		
Aug. 31, '12	30,313,000	871,000	103,231	8.4 weeks
Mar. 1, '13	30,579,000	1,958,000		
Aug. 31, '13	31,505,000	777,000	111,269	7.0 weeks

The report for mills outside of the United States is as follows:

STOCKS AT FOREIGN MILLS

Date.	Returns, Spindles.	Bales on hand.	Bales used per week.	Stocks will last
Aug. 31, '05	46,726,929	935,237	103,269	9 weeks
Mar. 1, '06	54,297,537	1,237,180		
Aug. 31, '06	66,072,303	1,210,610	145,603	8.3 weeks
Mar. 1, '07	71,054,503	1,911,071		
Aug. 31, '07	74,279,078	2,368,410	190,811	12.4 weeks
Mar. 1, '08	78,984,106	2,342,127		
Aug. 31, '08	83,371,883	2,132,045	215,472	9.9 weeks
Mar. 1, '09	85,906,697	2,425,127		
Aug. 31, '09	88,188,004	2,275,392	222,740	10.2 weeks
Mar. 1, '10	91,154,411	2,492,688		
Aug. 31, '10	91,124,025	2,005,786	236,990	8.4 weeks
Mar. 1, '11	93,726,091	2,641,688		
Aug. 31. '11	92,405,197	2,096,052	252,365	8.3 weeks
Mar. 1. '12	94,041,529	2,657,413		
Aug. 31, '12	96,424,132	2,998,540	278,142	10.8 weeks
Mar. 1, '13	92,985,126	2,811,535		
Aug. 31, '13	98,390,651	2,763,771	278,680	9.9 weeks

In addition to the regular report of Aug. 31, the International Federation gives the result of a separate inquiry regarding Egyptian cotton, made at the request of the Egyptian Department of Agriculture. This report covering returns from mills operating 9,458,731 spindles in England, Switzerland and Italy, was as follows:

	Bales used during year	Mill Stocks Aug. 31
Afifi	54,507	10,659
Abbassi	10,753	3,325
Upper	53,869	8,335
Yannovitch	44,681	9,905
Nubari	40,759	6,033
Sakellaridis	36,098	17,561
Other varieties	42,506	24,714

Following is the Egyptian Government report of the cotton area in Egypt, classified according to varieties:

1913-14	Acres
Afifi	686,111
Abbassi	41,121
Jannovitch	190,783
Ashmouni	392,133
Nubari	221,250
Sakellaridis	272,021
Afif Assil	72,553
Others	19,429
Total	1,895,403

"Straight Line" Calculations for Cloth Analysis

The new tariff has made it necessary for cotton goods merchants and manufacturers to know how to calculate the average yarn number in order to determine what the Underwood tariff is on cotton cloths. As a result a large number of merchants and manufacturers have been forced during the past six weeks to learn about the "straight line" method of cloth analysis.

The average yarn number on which the tariff is based is the number of the yarn as found in the cloth without allowance for take-up, and there is no simpler, more direct or more accurate method of determining this average number than by the "straight line" method, which has been repeatedly explained and illustrated in this magazine during the past eleven years.

The determination of the tariff yarn number, necessary as it is to the cotton goods trade, is, however, but an incident in the application of the "straight line" method of cloth analysis. The tariff yarn number is the finished yarn number without allowance for take-up, and this finished number is found at the first step in the "straight line" process. At the succeeding steps the other essential factors in cloth construction are easily and accurately determined.

Moreover, this direct method of calculation is equally well adapted for other kinds of woven textile fabrics, cotton, woolen, worsted and linen. For this reason we give below a series of "straight line" formulas, omitting the explanations for the sake of brevity.

THE "STRAIGHT LINE" DIE FOR CLOTH ANALYSIS

A sample of the cloth having an area of 1/300th square yard (4.32 square inches) is weighed by the grain. This sample can be cut in any shape desired, but a rectangular form, 1.8 inches by 2.4 inches, is the most convenient. For large patterns the weight of 1/300th square yard is calculated from the weight of a larger sample.

Having determined the grain weight of 1/300th square yard and the number of warp and filling threads per inch, the "straight line" calculations are made as follows:

1. Average cotton yarn number = threads per inch ÷ grains per 1/300th sq. yd.

The cotton yarn number of any particular group of threads can be determined by the same method after counting and weighing separately.

2. Average cotton yarn number = (threads per in. × sq. yds. per lb.) ÷ 23 1/3.

3. Average cotton yarn number = (threads per inch × 24) ÷ (ozs. per sq. yd. × 35).

4. Ounces per running yard 52 1/2 in. wide = grains per 1/300th sq. yd., no calculation being necessary.

5. Ounces per running yard = (grains per 1/300th sq. yd. × width in inches) ÷ 52 1/2.

6. Ounces per square yard = (grains per 1/300th sq. yd. × 36) ÷ 52 1/2.

7. Ounces per square yard = (grains per 1/300th sq. yd. × 300) ÷ 437 1/2.

8. Grains per square yard = 7,000 ÷ sq. yds. per lb.

9. Square yards per pound = 16 ÷ ozs. per sq. yd.

10. Square yards per pound = 840 ÷ (36 × grains per 1/300th sq. yd.).

11. Square yards per pound = 7,000 ÷ (300 × grains per 1/300th sq. yd.).

12. Running yards per pound = 840 ÷ (width in inches × grains per 1/300th sq. yd.).

13. Woolen runs = cotton yarn number × .52 1/2.

14. Worsted yarn number = cotton yarn number × 1 1/2.

15. Linen lea or woolen cut = cotton yarn number × 2.8.

The spun yarn number is calculated for cotton, woolen, worsted and linen from the finished yarn number by allowing for changes that may have occurred in length and weight. In the following formulas these changes are expressed by the yield of finished cloth in percentage. Thus, if the spun yarn shrinks 10 per cent. in length or weight in weaving and finishing, the yield of finished cloth is 90 per cent.:

16. Spun yarn number = finished yarn number ÷ yield % in length.

17. Spun yarn number = finished yarn number × yield % in weight.

18. Spun yarn number = (finished yarn number × yield % in weight) ÷ yield % in length.

[For the convenience of the trade we have arranged to supply these steel cutting dies at a reasonable price as explained elsewhere in this issue.]

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In 1911 the number of sheep in New Zealand was 24,269,620, but since that time the number has decreased. In April, 1913, the number was 23,661,151, as compared with 23,750,153 in 1912 and 23,996,126 in 1911.

Regulating Cotton Exchanges

The defeat of the Clarke "cotton futures" rider in the Underwood tariff bill is generally recognized as only a temporary setback for those who are agitating for a reform of cotton exchanges. The board of managers of the New York Cotton Exchange, evidently taking this view of the situation, have recently passed a resolution for the appointment of a committee to consider the following questions:

1. Changing the existing type of standards.

2. Making such change in the contract as the committee might deem advisable.

3. The general conditions of trading in the New York market.

This committee, consisting of Luitpold Mandelbaum, chairman, A. R. Marsh, W. H. Hubbord, A. B. Gwathmey, Jr., Clement Moore, T. E. Hicks and B. L. Rice, are reported to have held several hearings with the object of making an early report. One difficulty with the New York Exchange has been its policy of opportunism in meeting the general demand for a reform of its methods. Whenever the clamor over the abuses of its system of trading became especially violent, the Exchange managers have been in the habit of appointing a committee to consider means for reforming the Exchange from within. When the clamor subsided the zeal of the committee also abated. These tactics were in evidence six years ago, as they are now, and in the meantime practically nothing has been accomplished in the way of reform. Those who have watched the situation carefully for the past few years have reached the conclusion that the Exchange has not been reformed from within because an overwhelming majority of its members do not want it reformed, either from within or from without. In 1907 a few farseeing and energetic members of the New York Cotton Exchange organized an insurgent movement against the policy of the majority and appointed a committee of real investigation, whose report was published in the January, 1908, issue of this magazine. This committee, recognizing the physical obstacles to making New York a storage point for spot cotton, proposed instead to unite the New York Cotton Exchange with an organized system of warehouses throughout the South, where the cotton would be stored, the trading in actual cotton to be done by samples in New York. The following extracts from the report of this committee of insurgents are now of interest:

> If you go to any great Southern market as Memphis, New Orleans, Galveston, etc., you will see large lots of cotton of the various spinners' grades, inspected and classed out in even running lines of single grades ready for purchase by spinners or exporters. We used to see these in New York years ago, but we do not now, it does not pay to send them here. But it won't cost much to send the samples here and we can sell the cotton to better advantage stored safely in the South than if stored here in New York.
>
> If we had regularly a stock of 500,000 to 1,500,000 bales, nearly all of spinners' cotton, it would raise the price of our futures much nearer to that of spot cotton, and our future market would harmonize with the price of spots, and therefore would truly be the world's market for American cotton.
>
> Look at the ideal position of New York for such a spot cotton market. It is the money and business center of this continent; the third great money center of the world. Lying right between the South where the cotton grows and the Northern mills which spin it. New York is the greatest seaport in the world. Exporters and importers are gathered here as in no other city. There is hardly a cotton or woolen mill in this country that has not a house, or agent, or correspondent to sell its goods in New York. If they have to come here to sell goods, why not offer at the same time to sell them their spot cotton here and arrange their hedges in the future market? Will it not be a great help to the spinner if he finds he can manage all three transactions, or any one or two of them here at the same time?
>
> Does it not seem absurd that when we have such a perfect system (tested by many years' experience) for doing both a spot and future business and extending it to cover the spot trade in the South, we should insist that if a member wants to certificate and sell a bale of cotton he must bring it here, where nobody really wants it, where there is not a single mill to use it, and thereby add to its cost the additional expense of handling it in this city, a useless addition, because it helps neither spinner nor planter.
>
> If this Exchange will not keep up to the requirements of the cotton trade, the trade will leave us behind. The cotton world is demanding of us that we must represent the real trading basis, the spot prices for spinners' cotton, not prices based on "overs," low grade and speculation. We can easily do it if we will. No other exchange has half a chance against us if we do it now.

The "do it now" committee of the New York Exchange of 1907-08 failed to do any-

thing because they represented a small minority of the Exchange membership. A member of that committee told us at the time that the great majority of the Exchange members knew very little about cotton, their business career having been confined to the buying and selling of paper contracts, and that this majority controlled the situation. The result has been a continuance of the old conditions, which in time of wild speculation occasionally developed into a public scandal. Such an event occurred in August, 1908, the following extracts from the daily press reports at the time showing the character of the abuses:

The cotton market yesterday saw the most exciting day of the season, in many ways the most sensational day since the days of Daniel J. Sully. More than 500,000 bales were traded in, and more than $1,000.000 was made and lost across the ring. It was a day of liquidation, a day that marked the rout of the Wall Street bulls, and the complete victory of the strong crowd or cotton men that has borne the brunt of the fight on the bear side. Yesterday marked the windup of one of the prettiest market fights the cotton trade has ever known.

The bulls did not wait to see what the market was going to do, they had their big selling orders in at the opening, and from the start they began to toss cotton into the ring. Brokers were given orders to sell 10,000, 20,000 and even 50,000 bales, and they were not restricted as to the price at which they should sell it. All the orders were selling orders. There was not the slightest effort made by anyone to support the market.

The trouble with the New York Exchange is its location where cotton is not naturally nor easily accumulated. Lacking real cotton the business of the Exchange has been diverted to trading in paper contracts. This is what has led to the abuses which called forth the following comment by the U. S. Commissioner of Corporations in his report on cotton exchanges in 1909:

When the future contract ceases faithfully to represent cotton, an exchange becomes little better than a bucket shop. In some respects it becomes worse than a bucket shop. No one claims that a bucket shop influences the price of cotton. Spinners and cotton merchants do not consult bucket shop quotations. They do, however, constantly consult the quotations of the New York Cotton Exchange, with a view to basing their forward commitments in cotton or cotton goods upon them.

While public condemnation of gambling in cotton futures at New York has developed into a fixed purpose to reform or abolish the Exchange, the managers of that institution have blindly adhered to their policy of opportunism. The time, however, is passed when committees of investigation appointed by the Exchange can check the movement for reform. It is too late to temporize. The time for action has arrived.

Foreign Trademarks and Designs at the Panama Exhibition

The Kahn bill providing for the free entry of articles intended for the Panama Exhibition and for the protection of foreign exhibitors became a law on September 16. The sections of this law which provide for the protection of foreign trademarks and designs are in part as follows:

Sec. 2. The proprietor of any certificate of registration, copyright, trade-mark, or patent issued by any foreign Government protecting any pattern, model, design, copyright, trade-mark, or manufactured article imported for exhibition and exhibited at said Panama-Pacific International Exposition may, upon presentation of satisfactory proof of such proprietorship, obtain without charge a certificate from said branch office, which shall be legal evidence of such proprietorship.

Sec. 3. That it shall be unlawful for any person without authority of the proprietor thereof to copy, imitate, reproduce, or republish any pattern, model, design, trade-mark, copyright, or manufactured article protected by the laws of any foreign country by registration, copyright, patent, or otherwise, which shall be imported for exhibition at the Panama-Pacific International Exposition, and there exhibited.

Sec. 4. That any person who willfully and for profit shall infringe any right protected under this Act, or who shall knowingly and willfully aid or abet such infringement, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by imprisonment for not exceeding one year or by a fine of not less than $100 nor more than $1,000, or both, in the discretion of the court.

Sec. 6. That the right protected under the provisions of this Act shall begin on the date of the arrival of the pattern, model, design, copyrighted article, trade-mark, or manufactured article so imported for exhibition within the grounds of the Panama-Pacific International Exposition at San Francisco, and shall continue for a period of three years from the date of the closing of said exposition.

Since the bill became a law the National Registration League of Philadelphia has raised a number of objections, which are summarized as follows:

It is possible for anyone to ask some foreign government for a certificate of protection for the product of your concern, have the same imported and exhibited at the Exposition, secure a certificate under this law and say to you that you must stop manufacturing or subject yourself to all the liabilities and penalties provided by this new Kahn law.

The effect of the law is to vest all foreign government with the right to grant all kinds of protection within the United States, or to make effective, within our country the laws governing the grants of patents, trade-marks, registrations, etc., of every country on earth, and make our own citizens liable to the penalties of this bill for infringing the alleged rights under the laws of any and all foreign governments.

Under this law, goods imported from foreign countries for our markets in the regular order of business, may be prohibited from sale and merchants innocently handling them fined and imprisoned and the property confiscated because such goods are the subject of protection under the laws of some foreign country.

This new law will throw the patent and trademark situation into great confusion and do untold injury to the owners of American patents, trademarks and design property, as well as manufacturers of articles which anyone is now free to make.

It will also afford opportunity for unscrupulous persons to harass and blackmail reputable manufacturers and merchants in numerous ways.

While the League's fears may not be entirely warranted, the chronology of the measure in Congress raises the suspicion that it did not receive careful consideration in either branches of Congress. Introduced in the House by Mr. Kahn on August 22, it was reported back from the Ways and Means Committee on September 2, passing the House and reaching the Senate on September 2. The Finance Committee reported it favorably on the next day, and the Senate passed it the following day without debate. The House Committee may have given the measure the consideration it deserves, but the way in which it was railroaded through Congress gives force to the League's request that the objections be considered and the bill amended if found necessary.

NATIONAL ASSOCIATION OF WOOLEN AND WORSTED OVERSEERS

The thirty-first annual meeting of the National Association of Woolen and Worsted Overseers will be held at the American House, Hanover St., Boston, Mass., Saturday, November 15. The election of officers for the ensuing year will be taken up and other business transacted.

Conditioning Textiles at the Custom Houses

A few days after the signing of the Underwood bill on October 3 a number of the leading New York dailies announced that the appraiser at that port had plans well advanced for conditioning cotton yarn and cloth in order to keep the tariff uniform regardless of changes of temperature and humidity. This prompt official recognition of the weather as an important factor in the assessment of duties on cotton goods was not unexpected, for we had known for months that the customs officials at New York, Boston and Chicago had been studying our March and April editorials on the yarn number as a basis for the cotton cloth tariff.

The facts presented in these editorials left Congress with only one practicable method, namely, the adoption of the average yarn number as found in the cloth, without allowance for take-up, and the determination of the number under standard conditions of moisture. The law expressly defines the average yarn number as found in the cloth without allowance for take-up, and the Treasury Department has promptly recognized the conditioned weight as the standard for the administration of the act. There was, however, in the published reports of the official plans, a statement indicating that the Treasury Department may make a serious mistake in an important detail of the scheme. The "New York Times" of October 9 in an account of the plans at that port, said:

The project is still in its infancy, according to Appraiser Higgins, and it has not yet been decided whether to adopt the accepted foreign standards of moisture contained in the various kinds of merchandise and yarns to work out an American system for testing purposes. . . .

A new method is also being worked out for determining the average yarn count in cotton cloths, this being the most important point in the application of the new rates laid down in schedule I. It is understood that this method will result in the following formula: Divide the thread count per square inch by the weight in grains of one three-hundredth of a square yard, and the quotient will be the average number. It is expected that the new system will shortly be put into use at all of the American ports of entry.

The method of calculating the average yarn number is all right. We believe it

to be the simplest, most direct and most easily understood process that can be devised. It is the "straight line" method explained in our March editorial, which we have used for many years for the analysis of textiles and of which we believe the first published explanation appeared in the "Textile World" of October, 1902.

It is, however, not enough to use the right method of calculation. The cloth must be not only measured accurately, but also weighed with the right allowance for moisture. If the Treasury officials are in any doubt as to what the correct standard for moisture in cotton goods is, they are in danger of making a serious mistake, because there is only one trade standard and that is the established standard regain of 8 1/2 per cent. This standard regain for cotton was approved sixty-four years ago by the international textile congress at Turin after a careful investigation had been made. This standard has been accepted for years by the trade in all countries wherever cotton is bought or sold on a conditioned basis. When the number of cotton yarn is to be determined accurately, the 8 1/2 per cent. standard for moisture is as essential a factor as is the 840-yard hank or the avoirdupois pound.

When the Underwood law was framed so as to base the cotton cloth tariff on the average yarn number, there was no question as to what system of yarn numbering was intended. So far was this point beyond dispute that it was not necessary to name the system of numbering. Everyone understood without any explanation that the law meant none other than the number indicating the 840-yard hanks per pound, which is the world standard for cotton yarn. And so it is with the standard moisture regain for cotton. The law did not specify a standard, and for that reason the world standard of 8 1/2 per cent. is the only one now admissible for administering the tariff. A change in the yarn number, in the 8 1/2 per cent. allowance for moisture or in the rate itself, works a change in the tariff. A reduction of the allowance for moisture say to 7 1/2 per cent., increases the apparent yarn number and thus tends to increase the tariff on cotton yarn and cloth; while an increase of the allowance for moisture, say to 10 per cent., automatically decreases the yarn number and lowers the tariff.

Whether the law gives the Treasury Department the power thus arbitrarily to change the tariff on cotton goods by changing the established standard of weight is a question for the courts to decide. It appears reasonably certain, however, that if the Treasury officials undertake to assess the duties on any other than the 8 1/2 per cent. standard for moisture, they will have an opportunity to defend their ruling before the court of last resort. The importers will attend to that if the moisture allowance is reduced; and the American producers of cotton yarn and cloth will respond to the call of duty if the allowance is increased.

Another announcement emanating from the New York Custom House indicates that the officials at that port have a confused idea of the requirements in connection with the conditioning of cotton goods. J. L. Hollings, of the U. S. Appraiser's Department, New York, has compiled an elaborate set of tables, showing the threads per inch and weight of cotton cloth for the respective yarn numbers named in the Underwood law. For example, the table shows that if a cloth with 180 threads per inch weighs not less than 3.164 ounces per square yard, the average yarn number does not exceed 39s. This is correct so far as the calculation is concerned, but Mr. Hollings' confusion of ideas regarding conditioning is shown by the following from his explanation for using the tables:

> Whenever the weight found is within 4 per cent. of its given equivalent weight in the table, it will be necessary to make further trials of at least four samples, and if the average weight is again found to be within 4 per cent. the sample must be conditioned, i. e., dried to bone dryness and regain added back.

These directions and the 4 per cent. limit are Mr. Hollings' invention and have no justification under the law. The 4 per cent. limit would lead to the most absurd results. Suppose, for example, that a bleached cotton cloth having 180 threads per inch was

appraised under the atmospheric conditions existing at the port of Boston on July 17, 1911, when cotton showed a regain of 13.3 per cent., and that it was found to weigh 3.28 ounces per square yard. As this is within 4 per cent. of 3.164 ounces, the cloth, according to Mr. Hollings, would have to be conditioned, with the result that the conditioned weight would be found to be 3.141 ounces and the duty 20 per cent. Suppose now that under the same atmospheric conditions another lot of the same kind of cloth was found to weigh 3.30 ounces per square yard. Falling outside of the 4 per cent. limit, this cloth, according to Mr. Hollings, would not require conditioning, but would be subject to a duty of 15 per cent. As a matter of fact, however, the second sample, if conditioned, would show a conditioned weight of 3.16 ounces per square yard, which would call for a duty of 20 per cent.

Take, for example, a bleached cotton cloth weighing 3 ounces per square yard under the atmospheric conditions prevailing at Boston on Jan. 20, 1912. Falling outside of the 4 per cent. limit it would be subject, under Mr. Hollings' rule, to a duty of 20 per cent. without conditioning. If, however, a cloth with the same number of threads weighed 3.04 ounces per square yard under the atmospheric conditions prevailing at Boston eleven days later, on Jan. 31, 1912, it would come within the 4 per cent. limit and when, according to the Hollings' rule, it was conditioned, the weight would be 3.18 ounces per square yard and the duty 15 per cent. And yet if the first fabric, which was subject to a duty of 20 per cent. had been conditioned the weight would have been 3.20 ounces. In other words, Mr. Hollings' rule would impose the higher duty on the cloth having the lower yarn number.

These illustrations are based on the weight of cotton cloth under the actual atmospheric conditions at Boston on the dates named. In addition to the ordinary variations, such as these, the customs authorities will have to guard against, not only error, but fraud resulting from the intentional dampening of goods to secure entry under a low duty. Mr. Hollings' 4 per cent. rule would open wide the door to such fraudulent practices.

Of course, there is no authority under the law for such absurdities as would arise under Mr. Hollings' method, and it is to be regretted that such a rule should be published with even the semblance of official sanction. The law is plain and easily administered. All that is necessary is to determine the average yarn number after accurately measuring and weighing the goods, with a regain allowance of 8 1/2 per cent. for moisture.

It is out of the question for the customs officials to put a sample of every lot of imported cotton yarn or cloth through the regular conditioning process, which consists in drying to absolutely dry weight and adding 8 1/2 per cent. It is, however, a comparatively easy matter to regulate the temperature and humidity of the testing rooms so that the moisture in cotton yarn and cloth will automatically be kept uniform at the standard regain of 8 1/2 per cent. This is the only safe and sensible course for the Treasury Department to adopt.

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The Trade of Chemnitz with the United States

The American consul at Chemnitz sends us the following report of exports of gloves, hosiery and underwear from the Chemnitz district to the United States during the third quarter (July, August and September) of 1912 and 1913:

	Gloves	Hosiery	Underwear
Cotton, 1912:			
Quantity, doz.	377,569	449,368	4,409
Value per doz.	$1.39	$1.47	$4.63
Total value ...	$524,929	$659,966	$20,427
1913:			
Quantity, per doz.	493,827	345,769	5,240
Value per doz.	$1.54	$1.59	$2.32
Total value ...	$759,276	$549,299	$12,176
Silk, 1912:			
Quantity, per doz.	4,272	9,809	314
Value per doz.	$2.35	$2.14	$15.30
Total value ...	$10,039	$20,955	$4,803
1913:			
Quantity, per doz.	3,833	3,472	528
Value per doz.	$2.69	$2.70	$7.35
Total value ...	$10,272	$9,376	$3,878
Wool, 1912:			
Quantity, per doz.	46,877	6,455	2,477
Value per doz.	$1.26	$2.11	$5.20
Total value ...	$59,308	$13,609	$12,875
1913:			
Quantity, per doz.	57,152	4,868	1,328
Value per doz.	$1.19	$1.97	$5.43
Total value ...	$68,490	$9,617	$7,217

Fostering the Growing of Cotton

The paper on the cultivation of the Egyptian type of cotton in the Southwest, read at the Atlantic City meeting of the National Association of Cotton Manufacturers by Carl S. Schofield, of the U. S. Department of Agriculture, was of value for a number of reasons. First, because of the information it gave in detail regarding the best methods of producing this class of cotton in the United States. The grower of cotton will benefit directly; the cotton manufacturer indirectly by this information. In addition to this more or less direct benefit to the cotton trade, Mr. Schofield has rendered a valuable service by calling attention again to the fostering care bestowed on cotton growing by the government of the United States. For this reason alone the paper is worth reading even by those not specially interested in cotton growing or manufacturing.

From the time that the plan was formed about twelve years ago to grow Egyptian cotton in the Southwest, until the ginned cotton was baled and sold, there has not been a moment during which the government officials relaxed their vigilance in watching and caring for the infant industry. The Bureau of Plant Industry began experimenting in 1902. Nine years later "these experiments had reached a stage which seemed to justify the trial of this crop on a small scale by farmers". In the spring of 1912 seed was distributed by the Department to seventy-five farmers, a number of Indians, and twenty boys, the boys planting half an acre each with the cooperation of the Bureau; the nature of the soil was officially determined, and records of the yield from each acre were made; the rotation of crops was studied and the Bureau found that cotton did well after alfalfa, but should not follow sorghum or milo; the Bureau saw that the cotton was picked carefully and delivered to the gins free from trash; it found out, not only when picking began and ended, but when it should have ended; it carefully noted the supply of pickers in the different localities, the cost of picking and the difficulty encountered by the pickers in making their way through the entangled plants growing on irrigated fields; the Bureau did not lose sight of the fact that no cash outlay for picking was necessary when the acreage per family was small, and the mother and children, as well as the father, picked the cotton; the length and strength of the staple were officially measured and recorded; the percentage of lint cotton obtained from seed cotton was determined to 1/10th of one per cent.; the Bureau officials noted the kind of gin used and the daily production; the density of the baled cotton, the kind of wrapping and the amount of tare were officially determined and, presumably, controlled; the price at which the cotton, either ginned or unginned, was sold are matters of official record; also the manner in which the cotton was collected at and shipped from assembling points, and the effect on the cost; when seed was sold for planting the price was reported to the Bureau, as it was when the sale was to the oil mill; as might be expected the cost of production was officially studied; details of cost were recorded with extreme precision, and the effect of tough sod of alfalfa and Bermuda grass on the cost of production was reported; after the impressive particulars as to cost, the Bureau of Plant Industry arrived at the now familiar official conclusion that "the cost varied between wide limits," that "it should be kept in mind that these figures (which were given) are merely approximations".

This review of the official care of cotton growing in the Southwest is necessarily incomplete. The information is given in greater detail in Mr. Schofield's paper and in many government bulletins issued from time to time. Attention is not called to the Bureau's work for the purpose either of criticising or commending this branch of government activity. Our object is to call attention to the manner in which the United States government is fostering the cotton growing industry. No child could be reared by mother or nurse with more tender and constant care and solicitude than has been

bestowed on the Egyptian cotton infant in the Southwest by the employes of the U. S. Department of Agriculture. And this fostering care has been done at untold expense. Mr. Schofield goes carefully into the cost of labor and irrigation water and is careful to state that interest has been omitted from his figures of the cost of production. But he makes no reference whatever to the cost of the government supervision that he describes in such great detail. It would be interesting to know how much money the Department of Agriculture had expended in bringing the Egyptian cotton growing industry to its present development, and how much lint cotton has been produced to date. Then a fair judgment could be formed as to whether the work is worth while.

We do not desire now, however, to criticise the work, either because of possible expense or because of the extent to which the government has assumed the control and guidance of this industry. Our sole object in calling attention to the matter is to show that the growing of cotton is being protected by the United States more directly and effectually than is the manufacture of cotton into goods, even though there is a tariff on goods and none on raw cotton. This elaborate and expensive system of direct support and protection is by no means confined to Egyptian cotton in the Southwest, but has for many years been applied to the entire cotton growing industry. The facts are given here in order to show that the boast of Southern politicians, that cotton growing is without protection from the government is a myth, a pretense, that has gone uncontradicted for far too long a time. As a matter of fact cotton growing has been the particular pet of the government, in striking contrast to some other branches of agriculture, wool growing, for example, which for years has had very little care and supervision from the federal government.

All the foregoing is without any intention to criticise this kind of direct protection to an industry. There is, however, a recent development in cotton growing that is not thus immune from adverse comment. The cotton planters have not been satisfied with this direct protection. They have not been content with free trade in a commodity in the supply of which the climate and soil of the United States gives them a practical monopoly throughout the world. What they want is a cotton combine, which, regardless of the name it bears, will enable the cotton growers to control the supply and price of raw cotton. Their object was clearly exposed in a series of proclamations which began anonymously in the "Manchester Guardian" on Sept. 6, 1912. The six unsigned statements that appeared between that date and Oct. 25 were an amusing mixture of secrecy, professed frankness and flattery, designed to win the Lancashire spinners to a scheme of cooperation with the cotton planters, the following being typical extracts:

> The authors of this announcement and the former one do not propose to disclose their names. It would serve no useful purpose and might possibly interfere with negotiations that are pending. . . .
>
> The Lancashire spinner has many great qualifications. The skill and efficiency of the industry, the wisdom and liberality of the spinner's dealings with labor excite the admiration of the whole industrial world. . . .
>
> It is for the planter and the spinner to put their heads together and devise a practicable plan of cooperation. . . .
>
> The Southern Cotton Corporation hope to show how the expenses of the present system may be substantially reduced and in the end eliminated. Their representatives will be in Manchester again on Monday, and may be communicated with at Box T 99, "M/c Guardian" office.

In our October, 1912, issue we called attention to the articles in the "Guardian", summing up the matter in these words:

> The danger involved in any grand scheme of cooperative warehousing and selling of cotton is that it will be the sure foundation for a gigantic cotton trust, oppressive to both producer and consumer, and which, if once well started, would certainly not stop at the mill gates.

After reading our October article, the men hiding behind "Box T 99, M/c Guardian" threw off their disguise and on November 1 issued a statement in the "Guardian" signed "George D. Wadley, president, Southern Cotton Corporation, which began as follows:

> We had the honor to have our announcements in this column referred to by the "Textile World Record" of October. That journal sees in our proposals a sinister design to form a great cotton trust, and accuses us of decoying the guileless spinner with fair words about cooperation.

Then followed this frank admission:

Fifteen cents a pound! Of course we want fifteen cents a pound for our cotton, and we mean to try all we can to get it. . . . Fifteen cents is our war-cry. In the meantime our plan, as distinct from our ideal, is to take the cotton of such farmers as join our Corporation, warehouse it, pay the farmer the market price, that is, the price he would get from the cotton buyer in his own town, and give him scrip entitling him to the difference between the price he got and the price we get, less our expenses and commission.

Our plan is to send the cotton over to warehouses in Manchester and Bremen and Havre and sell it direct to the spinners against the competition of cotton marketed in the ordinary way.

That fifteen cents a pound did not mark the limit of the corporation's hopes, was shown by this extract from the farewell statement by President Wadley in the "Guardian" of December 13, 1912:

In all these announcements we have made no attempt at concealment of our object, namely, to get as good a price for cotton as we can.

We want not only as high a price as we can get, but also we want all the profits that at present are made between the plantation and the mill. We cannot easily lay hands on those profits without the assistance of the spinner, and we are extremely anxious to get his active cooperation and goodwill. We are also bent on fashioning an instrument which shall be the means of bringing some kind of order out of the chaos which at present exists in the cotton industry.

The Southern Cotton Corporation is still in existence, although it has recently suffered a setback by the failure to obtain a license to do business in Arkansas. Its object, however, has the endorsement of the cotton growers throughout the South. This is shown by the vote of the National Farmers' Union at Salina, Kansas, on September 4, to hold the cotton crop until it can be sold at 15 cents a pound.

Whether this scheme of controlling the supply of American cotton is legal or not is for the courts to decide. Whether the courts will have an early opportunity to decide that question under the administration of a President who has signed an appropriation bill providing that none of the money shall be expended in prosecuting labor unions and farmers for violations of the anti-trust law, is for that President to decide. Something valuable will be accomplished, however, if a plain statement of the facts shall impress on the minds of the American people the hypocrisy of those who framed and passed the Underwood tariff bill, and which finds no better example than in this extract from a speech of Senator Hoke Smith of Georgia on Aug. 14:

We produce $850,000,000 worth of cotton. Of course the cotton grower has no protection. We do not ask it for him. It is true that $20,000,000 of cotton came in from foreign countries last year. It is true that our long staple cotton in Georgia has for its great competitor the Egyptian. But we say to the American cotton grower, "The people must be clothed with cotton goods, and you ought not to ask to reach your hands into the pockets of the people who are to be clothed with your product and seek a high price for it by an arbitrary standard fixed by statute."

CAUSTIC SODA IN SHEEP DIP

Editor Textile World Record:

We are venturing to call your attention to the fact that caustic soda is an ingredient of one of the sheep dips enjoying the recommendation of the South African Department of Agriculture Sheep Division. Caustic soda is used in the test for mixed goods to dissolve the wool, from which it follows that a more unsuitable ingredient for a sheep dip than caustic soda could not well be suggested.

As United States manufacturers will under the new tariff, be dealing more widely in South African wools, this recommendation of the caustic soda and sulphur sheep dip is a matter of vital importance to the whole wool industry of your Continent, and as your journal is clearly concerned with all that appertains to that industry, we think you will be interested in reading the enclosed copy of the official instructions for the preparation of the officially-recommended caustic soda and sulphur dip. Chemical.

Directions for the Preparation of Caustic Soda and Sulphur.

(Extract from the March, 1913, issue of the Agricultural Journal of the Union of South Africa.)

Take 5 lbs. Caustic Soda (Thistle brand), 98.99%
20 lbs. Sulphur.
100 gals. Water.

Mix the sulphur with enough hot water to form a thin cream (when mixing the sulphur into a paste not more than 2 1/2 gallons of hot water should be used; if mixed into too thin a paste the soda does not boil readily). Then sprinkle the caustic soda slowly into the cream, stirring the mixture thoroughly until all the soda is in. In 40 minutes the resulting fluid can be poured into the

100 gallons of water. The ingredients necessary to make a larger quantity than 100 gallons of dip should not be mixed in bulk. If, for instance, 1,000 gallons of dip are required, ten lots should be made as above. Mixing in bulk is liable to result in the materials becoming caked and not properly dissolved. All lumps in the sulphur should be carefully broken up. Sheep should be kept in the dip two minutes, and goats three minutes. When pouring the caustic soda into the sulphur cream, always stand above the wind. The mixture should on no account be boiled.

EFFICIENCY, ITS USE AND ABUSE

An Address before the Chicago Executive Club
By Melville W. Mix, President
Dodge Manufacturing Company, Mishawaka, Ind.

No line of endeavor has been less understood or more generally misunderstood than efficiency. It is an unfortunate selection of name for a most important phase of our domestic and commercial life, and is as susceptible of varied definitions as some of the hieroglyphics of Cleopatra's needle. Operative standardization has become one of our most important factors of development. It deals with those things which we can control, and has nothing to do with the settled forces of nature. The action of a falling weight has an established effect. The attraction of gravitation is a known force. We cannot change the basis of the force, but we can change its method of utilization. Steam at a given pressure contains a certain force that we cannot change. We may utilize that force in a variety of ways and with a wide range of net results. We do not change the constituent elements of a pound of coal, but we are very extravagant in our utilization of the energy contained therein. It is entirely a matter of operative science; and the development of standard of operation is as essential to the ultimate realization of what ought to be as was the adoption of standards of weights and measures, and the harnessing of all natural forces.

Insufficient attention is being paid to the human side in the mad rush for the so-called efficiency. Man shall no longer be regarded as a machine. There are too many opportunities open to the red-blooded man of this day to necessitate his accepting employment which is open to him only on that basis. We all know of many instances where men are continuing in positions for less money than can be obtained elsewhere, because of the satisfactory conditions and consideration which they enjoy, which is sufficient to prove that money is not necessarily a competitor with occupational good-will. Much antagonism has been created against efficiency because of the false interpretation which has been placed upon the plan by many who have seen only the hard, driving side of the question. Men are apt to get the idea that they are being speeded up only to enhance the profit of the employer, and thus there may be aroused within them the spirit of resentment that cannot help but defeat the very purpose of the science.

Efficiency in fact is speeding down, but make the motions count for something. It should save labor, and physical as well as mental strains. Less motion and more results is the keynote. Sometimes it is the person, sometimes the machine or the operation that is changed. The mind must be cultivated in advance of the body, and ample opportunity must be given for a full understanding of the meaning and advantage of operative standards and rewards to the end that all workers, from top to bottom, may feel the same responsibility to meet standard conditions in occupations that a merchant should feel in giving sixteen ounces to the pound or thirty-six inches to the yard.

The conservation of the human resources of the country is vastly more important to our ultimate success and prosperity. I do not refer to this so much from a physical standpoint, as from the intangible, yet more impressive and more important viewpoint of happiness and contentment—the spiritual side. The spending of money which has been earned by hard work is never considered from the standpoint of a labor equivalent. A worker at 25 cents per hour does not think how hard he or she worked when the 25 cents goes for chocolate creams or cigars; and on the other hand, a pleasure enjoyed may seem cheap measured against the work standard.

No efficiency work was ever successful that did not earn for itself the approval and

satisfaction of the worker; or in other words, his spiritual cooperation must be secured. We don't work well under any system if we have the strain of machine methods in our minds, yet in our capacities as executives, we may be endeavoring to press that yoke on those under our supervision without a thought that the same sentiments and feelings that control our disposition to work also exist in the minds of those associated with us.

We talk about "mixing". Has it ever occurred to you that the same glad hand and smile and consideration to our fellow workers may seem more to us and to those receiving them than the same evidence of good fellowship which we may effusively give to a customer, or to some from whom we may expect to benefit through a business transaction If we seek to influence a business deal with "good mixing" why not go further and give some of it to our associates that we are with every day and who work with us shoulder to shoulder, for better or worse? They want it; they like it. You liked it when you were in their places, and you responded to it or you would not be where you are today.

If you worked for a man or firm who didn't give you that cheer and comfort of a certain comradeship, the chances are you would quit the job and go to a more congenial atmosphere; and under that influence the best that was in you came out, and you delivered the goods you could have delivered to your former employer if he had known how to encourage you.

I do not mean to be sentimental in this matter; we often find men who are apparently successful who say there is no sentiment in business; to such, I say "Bosh!" I wouldn't give the snap of my finger for the business or organization that does not contain some sentiment, some vestige of a human soul. No vital problems are finally and satisfactorily disposed of that do not contain some consideration of the human element and as for myself, I prefer not to deal with any conditions or forms of organizations—social, political, or commercial—in which the dominating influence is actuated by an arterial circulation of ice water. It doesn't get anywhere. Every one who comes in contact with it gets a chill. Other connections are sought at the first opportunity where the broad human spirit does prevail. We can nearly always tell the dominating spirit that pervades an organization the moment we come in contact with any part of it. In the right sort, everybody radiates enthusiasm, good cheer, courtesy and consideration. There is no greater asset to any business than occupational good will, yet it is never seen in a financial statement and would probably be bluepenciled if it were stated and appraised, because of its intangibility. Nevertheless, it is one of the most important factors in developing a successful business.

Corporate or organized personality finds its origin in the executive, and in so far as he recognizes its value as a world or business force, his undertakings will prosper as he capitalizes it in the minds of those of the public with whom his enterprise comes in contact. The unseen, unfelt, intangible thing becomes the real, active force that makes the wheels go around. No task is severe, no difficulty is unsurmountable, no requirement is too exacting where this spirit really prevails. We cannot buy it, we cannot produce it, except as we cultivate it within ourselves, and expand the usefulness by radiation and encouragement. The human element, therefore, becomes the most important controlling factor in operative standardization, and to just the extent to which it is recognized and developed may be measured the ultimate success of any and all efficiency undertakings.

I have every reason to believe that some of you are some golfers. I want to remind you that the ancient and honorable game of golf is probably the original "efficiency" game; and whether you are a scratch man or one of those G. A. R. players who goes out in 61 and back in 65, you get an equal amount of pleasure out of the game, and that is because of the "standard" score, which is established for every course regardless of dissimilarity. Col. Bogey may be a myth, but he keeps us busy regardless of his

absence. We play off bogey according to our ability, with the same degree of pleasure that the professional plays off the par score. Our handicaps may be expressed in percentages of efficiency, just as well as in the way they are expressed—the meaning is the same. We seek to improve and approach the standard with the same zest at 15 handicap as we would at 5 handicap.

It illustrates the application of standards and how it adjusts itself without undue distress to individual ability. Sales quotas, expense ratio are simply golf standards applied to business and through the influence of the game, such contests take on the atmosphere of sport rather than the irksomeness of a task. If for no other reason than to teach the application of standards, golf ought to be the national game and I don't expect to have to call for the yeas and nays on the question.

There is a great awakening to the importance of the human side of things, one has only to review some of the recent developments along that line. Amongst other movements of a national character is the recent incorporation of the National Association of Corporation Schools, having for its motive the development and standardization of educational work to be carried on in connection with actual business, industrial, and agricultural operations. This movement has the support and initiative of some of the largest employers of the United States and deals with all branches of education from that of the cash boys and girls of the department stores, and apprentices covering the rudimental work, to the advanced office employes of our largest concerns, covering finance, salesmanship, organization, etc. Proper education is the all-around cure for many of our ills, and will solve our most perplexing problems.

Another example: In nearly all large establishments and many small ones the subject of safety to employes and to the public, is receiving most careful and detailed consideration, and many unique forms of producing personal interest have been introduced. One form of creating cooperation in this line may be interesting to you, and I refer to it with some pride because of my personal connection with its inception and development. In the manufacturing department of the Dodge Manufacturing Company we conduct a score board on much the same line as a batting average baseball record, twenty-six departments complete—our first year will expire September 30th. For each day's absence on account of injuries due to work accidents, a departmental penalty is charged against a score of 1,000. No penalty is charged for less than one day's absence for obvious reasons. The penalty is adjusted in each department according to monthly men-hours of the department, thus we have a good example of efficiency standard for scoring, all being on the same penalty basis.

A large score board is erected at the main works entrance, giving the monthly and year-to-date record of each department in the competition. Two days' extra pay will be paid to all employes, including foremen and general foremen, in all departments scoring 1,000 for the year, or for the highest score, and one day's extra pay for the second highest. The competition is keen, workmen caution their fellow workers, foremen are watchful, and woe unto the man who causes a penalty to his department because of carelessness, for above all the controlling spirit seems to be in maintaining a perfect score for the department rather than the intrinsic value of the prize. On Sept. 1, thirteen departments stood at 1,000, eight departments are above 995, and two at 945 are the lowest or in tenth place. This is a fair example of the human interest phase of accident prevention, and I firmly believe it more productive of good results than many forms of guards and warnings that are so readily provided.

You daily see the workings of the human, the blood and soul side. No greater asset, or one subject to less deterioration, can be given a community. The human depreciation reserve may even be permitted to dwindle to nothing and be expanded on the other side as an asset, as we establish the right and justice of humanity and carry the art of micing to the operative side with the same

enthusiasm and consideration that we use it on the selling side. May God speed the day when the executive will come into his own through his ability to develop and maintain the occupational good will of his associates at 100 plus, and the blood in our veins leap with joy at the consciousness that degree does not depreciate the red corpuscle blood count.

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UNFAIR COMPETITION IN THE MAKING-UP OF YARNS AND PIECES

BY MORETON J. RILEY, LL.B.

Read before the International Cotton Congress at Scheveningen

This question of trade mark rights by priority of user has already been discussed at International Conferences and Congresses. At the Washington Conference in 1911, for the revision of the Paris Convention for the protection of industrial property, Great Britain proposed to add to Article X. of the Convention a provision in the precise terms of the Herschell clause. The British Government delegation pointed out that their purpose was to establish effective protection against a particularly harmful form of unfair competition in such countries as had insufficient provisions on the subject. The proposal met with general approval, but objections were raised, and it was not passed.

At the Congress of the International Association for the Protection of Industrial Property, held in London, In June, 1912, where I had the honor of representing the Manchester Chamber of Commerce on the subject of trade marks, a number of papers were contributed on the question of trade-mark rights by priority of user, and a full debate ensued. The result was that certain proposals on the subject were put forward which came nearly into line with those advocated by the Manchester Chamber, and ultimately a form of resolution was drawn up which ran as follows:

"The Congresses expresses the desire, that in every country any distinctive sign, which is recognized in trade as distinguishing the products of a manufacturer or merchant, should be protected, independently of any registration, against any unfair competition, that is to say, against any use which is liable to create confusion in the minds of the public."

This resolution was put to vote and carried by 42 votes to 2. Another resolution was passed unanimously in the following terms:

"The subject or citizen of a State of the Union who has first used any distinctive sign of any State of the Union in such a manner that is recognized in trade as distinguishing his goods, may, if another has subsequently obtained registration in that State, nevertheless, continue to use the distinctive sign, so far as the conditions of fair competition allow."

It will be seen that these resolutions, though stated in general terms, practically give expression to the now prevailing views in support of title by priority of user. The resolutions passed at these Congresses are brought prominently to the notice of the several Governments of the countries represented, and in this manner questions dealing with legislation and procedure in relation to patents, trade marks, and designs, become international, and are kept well to the front.

It is peculiarly necessary for the cotton trade to assert the principle of title by priority of user, apart from registration, because the majority of cotton trade marks in use are, and always must be, not merely unregistered but unregisterable in all those countries where the registration consists of anything more than a mere deposit of the mark, and where the registration authorities decline to accept for registration any new cotton mark, which, in their opinion, conflicts with any cotton mark already deposited and on record in their own trade marks office. It is most of all necessary in the case of Great Britain, where in consequence of the 84,000 cotton marks already on record, and of the severe official search made by the Trade Marks Office for the purpose of quoting conflicting marks that stand in the way of new applications, it has become year by year more difficult to obtain registration of new cotton marks, especially for cotton piece goods.

The necessity of finding some escape from this difficulty showed itself long ago; and a practical way was found, by treating priority of user, apart from registration, as the governing factor of title in disputes over conflicting marks in the same markets.

It is not improbable that the difficulty in the way of obtaining registration of new cotton marks may be making itself felt in other countries where a similar system prevails of quoting conflicting marks and refusing registration in deference to them.

The needs of the cotton trade all over the world require that there should be a never-ceasing supply of new trade marks adapted for all markets; yet few of them will be found capable of registration under the present regulations.

These considerations serve to show that legal protection for cotton trade marks cannot be allowed to depend on registration alone. The only other possible basis of protection is by adopting the principle of priority of user as the real foundation of title. This object has been already largely achieved in the manner above set forth, and it seems obviously desirable to obtain its universal recognition if possible.

It is the law in some countries that registration is necessary in order to complete the legal title to the ownership of a trade mark, and consequently that unless a trade mark be duly registered it cannot receive legal protection. That is not the law in Great Britain, and never has been. No man's title to his trade mark depends, in England, upon registration. The courts refused to admit that the Trade Marks acts took away anyone's rights; and the cotton trade has always successfully maintained that unregistered marks are as good as registered ones, provided a sufficient title by user is established.

Registration (when you can get it) is useful, because of the simplicity of proof of title which is accorded to a certificate of statutory registration. It is also useful for the purpose of showing the official recognition of title to the mark, and thus

paving the way for obtaining registration in those foreign countries which insist on a certificate of registration in the country of orgin. But it is user alone that forms the true foundation of the title.

Registration of every mark as a condition of obtaining a legal right in it is an unattainable ideal in the case of cotton goods, partly because the field for new marks is so nearly covered by the vast number of marks already on record, but, secondly and mainly, because of the universal practice in the cotton trade of using the same principal object in combination with a variety of others, and also with varying words, letters, numerals, headings, or other distinguishing characters.

The trade in cotton goods has for centuries been largely built upon these combinations. They are infinite in number, and are the subject of everlasting variation; yet each variant constitutes a separate trade mark. It is obviously impracticable to obtain registration of all—or, indeed, of any but a selected few.

So long as the present system remains unmodified, it follows that in the cotton classes the vast majority of trade marks in use are, and always must be, unregistered and unregistrable, even under the most liberal interpretation of the "essential particulars" of a registrable mark laid down in the Trade Marks Act.

THE MERCHANDISE MARKS ACT, 1887

The scheme of this Act is that a person who commits any of the defined series of offences as to trade marks and trade descriptions set forth in Section 1 shall, unless he proves that he acted without intent to defraud, be guilty of an offense against the Act.

The onus of proof of the defendant's fraud is not placed upon the prosecutor. If he proves the commission of the particular act by the defendant, the fraudulent intent of the latter is assumed, and he is half guilty, unless he proves that he acted without intent to defraud.

This is the outstanding feature of the Statute, and the one that has mainly contributed to its successful operation.

The list of forbidden acts comprises:

(a) Forgery of a trade mark;

(b) The false application to goods of a trade mark—meaning (by definition in Sec. 3) a registered trade mark—or any mark so nearly resembling a trade mark as to be calculated to deceive;

(c) The making of any die, etc., for the purpose of forging a trade mark;

(d) The application of a false trade description to goods;

(e) The disposal or possession of any die, etc., for the purpose of forging a trade mark; or

(f) The causing of any of the above-mentioned things to be done.

Sec. 1 further provides that anyone who sells, etc., any goods to which any forged trade mark or false trade description is applied, or any trade mark or mark so nearly resembling a trade mark as to be calculated to deceive, shall be guilty of an offense against the Act, unless he proves

(a) That having taken all reasonable precautions against committing an offense against the Act he had no reason to suspect the genuineness of the mark or trade description;

(b) That on demand by the prosecutor he gave all the information in his power with respect to the person from whom he obtained the goods, or

(c) That otherwise he had acted innocently.

Here again the defandant's fraud is assumed if his commission of the prohibited act be proved by the prosecutor, and the onus is put on the defendant of proving that he acted innocently.

The penalties imposable by the Act on a guilty defendant are imprisonment, with or without hard labor, not exceeding two years, or fine not exceeding £20, or both imprisonment and fine, and forfeiture of all the articles by means of which the offense was committed. Charges under the Act may be dealt with by indictment or (by consent of the defendant) by a Court of Summary Jurisdiction. In the latter case an appeal is allowed to Quarter Sessions.

So far, every prosecution in Manchester in a cotton case has been heard by the Court of Summary Jurisdiction, and there has been no appeal.

In Sec. 3 the expression "trade description" is defined as meaning any description, statement, or other indication, direct or indirect as to

(a) The number, quantity, measure, gauge, or weight of any goods (this touches the marking, or the indication, of false lengths in the make-up of cotton piece goods and cotton yarn);

(b) The place or country in which any goods were made or produced (this touches false marks of origin);

(c) The mode of manufacturing or producing any goods;

(d) The material of which any goods are composed;

(e) Any goods being the subject of an existing patent, privilege, or copyright.

It is also enacted in Sec. 3 that the use of any figure, word or mark, which according to the custom of the trade, is commonly taken to be an indication of any of the above matters, shall be deemed to be a trade description.

The expression "false trade description" is defined as meaning "a trade description which is false in a material respect as regards the goods to which it is applied."

Then comes the famous Herschell clause, which has been brought into use on nearly all the prosecutions for infringement of combination cotton marks based upon false trade description, and upon which multitudes of other cases of such infringements have been settled without recourse to prosecution or litigation.

It was there enacted that the penal provisions of the Act respecting the application of a false trade description of goods should

". . . extend to the application to goods of any such figures, words, or marks, or arrangement, or combination thereof, whether including a trade mark or not"—meaning (by definition in the Act) a registered trade mark—"as are reasonably calculated to lead persons to believe that the goods are the manufacture of merchandise of some person other than the person whose manufacture or merchandise they really are."

The effect of this enactment was to dethrone a

registered trade mark from any higher position which it might be considered to enjoy by virtue of registration, and for the purpose of the Act to place all trade marks, whether registered or not, on the same level as regards title, making that question dependent upon proof of priority of user in the particular market where the conflicting marks are used, and making that priority the sole test of the question at issue between the prosecutor and the defendant.

It is not too much to say that the Herschell clause has proved the sheet anchor of protection for that class of marks, and has done more to put down the imitation of them than any civil action either for the infringement of trade marks, or for "passing off" a defendant's goods as and for those of a plaintiff. The successful use of the Herschell clause turns, as has been said, upon the proof of priority of user in the market in which the conflict between the marks occurs.

At present the Herschel' clause finds no place in the Trade Marks Act of 1905, and has not yet been utilized in its statutory terms in a civil action. At the instance of the Manchester Chamber of Commerce a clause in similar terms was tendered to the Parliamentary Committee who had charge of the Bill for the Act of 1905, and was inserted by the Committee in their amended Bill, but it was afterwards struck out by some intervening authority. It would be a great gain to the cotton trade, for the purpose of assisting civil process, if such a clause were inserted in any future bill for amendment to the Trade Marks Act, and it might well be made a principal object of the British cotton trade to procure its insertion.

Sec. 6 provides for the exemption from prosecution of certain persons employed in the ordinary course of business.

Sec. 11 is very important. It provides that any person who, being within the United Kingdom, is accessory to the commission without the United Kingdom of any act which would be a misdemeanor under the Act, if committed in the United Kingdom, shall be guilty of that misdemeanor as a principal.

Particulars are given below of a successful prosecution in Manchester under this section, in respect of the short reeling of yarn in Italy.

Sec. 12 authorizes the issue of a search warrant by a magistrate, after a summons under the Act has been issued against a defendant, and enacts that by virtue of this warrant the police may enter the defendant's premises and search for and take away any goods or things by means of which the alleged offense has been committed. This course of procedure has been adopted with complete success in several cases.

Sec. 15 limits the time for prosecutions. No prosecution may be commenced after the expiration of three years next after the commission of the offense, or one year next after the discovery thereof by the prosecutor, whichever expiration first happens.

Sec. 19 provides that the Act shall not exempt any person from any other kind of action which, but for the provisions of the Act, might be brought against him. This enables a prosecutor to follow up the conviction of a defendant by bringing a civil action against him for an injunction and damages in respect of the same infringement. This procedure has also been adopted with complete success.

CIVIL PROCEEDINGS AGAINST INFRINGEMENT

These are usually taken in the form of an action for an injunction to restrain the defendant from "passing off" his goods as and for the goods of the plaintiff, and from infringing the plaintiff's trade mark (when this relief is claimable), and for damages for the injury done to the plaintiff, or (the plaintiff so elect) for an account of the profits made by the defendant by means of his wrongful acts.

The specific relief claimed is generally somewhat in the following form:

1. An injunction to restrain the defendant from getting up cotton piece goods with stamps, tickets, etc., in imitation of the plaintiff's stamps, tickets, etc., or which by reason of colorable imitation of the same are calculated to represent or lead to the belief that such cotton goods are goods of the plaintiff;

2. From selling or exporting, etc., any cotton piece goods not being the plaintiff's goods so stamped, ticketed, etc., as aforesaid;

3. From passing off, or enabling or assisting others to pass off any cotton piece goods not being the plaintiff's goods as or for goods of the plaintiff;

4. From infringing the plaintiff's registered trade mark;

5. For delivery up of all stamps, tickets, etc., which offend against the foregoing injunctions;

6. For damages or, at the option of the plaintiff, an account of profits;

7. Costs.

Examples of Infringement: I will produce to the Congress some examples of infringement, and point out their particular features.

UNFAIR COMPETITION IN THE MAKING-UP OF YARNS

The definition of a "false trade description" in the Merchandise Marks Act has been held in several cases in the Manchester Police Court to be wide enough to reach the complicated system of fraud practised in the cotton trade known as "short reeling." Cotton yarn is reeled into lengths called hanks, each hank containing by the custom of the trade 840 yards. The yarn is sold by weight, and is usually made up in bundles of 5 or 10 pounds. The price is regulated by the "count" of the yarn, or, in other words, by the number of times a hank of 840 yards is contained in a pound weight of yarn; the greater the number of hanks in the pound the finer the yarn and the higher the price. This yarn containing 12 hanks to the pound is spoken of as 12s, and would fetch a smaller price than yarn containing 16 hanks to the pound, called 16s. Anyone acquainted with the trade can tell at a glance, from the make-up of the bundles, how many hank the yarn contains to the pound, or, to speak more accurately, how many it ought to contain if the count of the yarn be genuine. In other words, the make-up of the bundle affords an indication of the count or meas-

ure of the yarn within the meaning of the Merchandise Marks Act. In the first of these cases, heard in the Manchester Police Court in 1889, the defendant, for the purpose of his export trade, caused bundles of yarn containing 45 hanks to the pound to be made up as yarn containing 60 hanks to the pound. This was effected by short reeling, a process by means of which the length of the hank was reduced below its proper number of yards so far as was necessary to increase the number of hanks per pound from 45 to 60. In addition to this, the number "60" was placed on the outside of each bundle to indicate the count of the yarn. These acts constituted the "false trade descriptions" in respect of which the defendant was prosecuted and convicted. They resulted in a double fraud, since the yarn was made to appear to be of a finer quality than it really was, and the hank, instead of containing its proper number of yards, viz., 840, contained only about 630 yards, and was, in fact, a spurious hank. Consequently there was a misrepresentation both as to the length and as to the fineness of the yarn. The stipendiary magistrate held that the make-up of the bundles afforded a sufficient indication of the measure of the goods within the definition of "trade description" in Sec. 3 of the Merchandise Marks Act, and he convicted the defendant. In another case in the Manchester Police Court, heard in 1898, the defendant was also convicted upon a similar state of facts.

The effect of these convictions was to render it difficult, if not impossible, for a merchant desirous of placing "short reeled" yarn on the market to procure it in Manchester; but in 1903 another person, a relation of the defendant in the 1898 case, was charged in Manchester under Sec. 11 of the Merchandise Marks Act with having been an accessory to the commission of a similar offense abroad, and was convicted. In this case the defendant was a member of a firm carrying on business in Manchester and in Constantinople as dealers in cotton yarn. The Constantinople branch of the firm caused yarn to be manufactured and made up in Italy, and then supplied to them in Constantinople for sale in the Turkish market. The payment to the Italian manufacturer was made by means of bills drawn upon Manchester and accepted there by the defendant. The yarn which formed the subject of the prosecution had been manufactured in Italy, supplied to Constantinople, and paid for in Manchester in this course of trade. It was made up in 10-pound bundles purporting to be 14s, 20s and 24s, that is to say, each pound in each bundle ought to have contained 14, or 20, or 24 times 840 yards of yarn, whereas in fact they contained far short of this number of yards by reason of coarser and heavier yarn being used, though the weight was correct. Thus each bundle of 14s contained 91,000 yards instead of 117,600 yards, each bundle of 20s contained 129,600 yards instead of 168,000 yards, each bundle of 24s contained 168,960 yards instead of 201,600 yards; so that the yarn supplied was both smaller in quantity and inferior in quality than the make-up of the bundle indicated to be the case. If this short-reeling had been done in Manchester, the defendant must have been convicted in accordance with the previous decisions, and it was held that as the defendant was a member of the firm trading in Constantinople as well as in Manchester, and had paid for the short-reeled yarn by accepting the bills, he must be convicted as an accessory. The bundles were also numbers "14," "20," "24," and this marking was the subject of other counts in the prosecution, but the prosecutor did not further press the matter after obtaining a conviction on the first count, which was as to the make-up of the bundles.

REGISTRATION IN COUNTRY OF ORIGIN SHOULD NOT BE REQUIRED BY FOREIGN COUNTRIES

This is an important question, closely connected with the subject of infringement. Some countries register the trade marks of foreigners without requiring proof of registration in the country of origin. Among them are Great Britain and France; but the majority of States belonging to the International Convention insist upon production of a certificate of home registration as a condition precedent of allowing registration by themselves. In the opinion of the Manchester Chamber of Commerce this condition is unsound in principle, and it certainly works unfairly in practice.

It has been well said that a trade mark acknowledges no boundaries, and that since trade marks are recognized throughout the world, and not merely in the manufacturer's or the merchant's own country, as indicative of his goods, the right of property in a trade mark is not limited by territorial bounds. Hence we may deduce the principle that when a trade mark is established in a foreign country by user there, the owner ought to be entitled to legal protection of his trade mark rights in that country, whether registration has or has not been effected in the country of origin.

The first test of registrability of a trade mark in the foreign country in which registration is applied for should be the proof of its user there. If the mark passes this test, then the question of allowing registration should be left to depend solely upon the application of that country's laws and regulations governing the registration of trade marks, which ought, prima facie, to be the same for foreigners as for nationals. The question whether the trade mark is or is not registered in the country of origin is not relevant to the question whether it shall be admitted to registration in another country, has nothing to do with it.

It may very well be that a trade mark which is not registrable in one country may be registrable in another. In England, for example, where the system of registration is carried out with great strictness, and where registration is only allowed after an exhaustive official search for conflicting marks, a cotton mark sent in for registration is often found to be in such common use as not to permit of its registration by any one person; but the same mark when used by the same owner in another country may not be common there. In that case, if the proprietor satisfies the requirements of the local law in regard to registration of trade marks, he ought to be allowed registration. He ought not to be debarred from the privilege, merely because he has not been able to obtain

registration in England, and, consequently, is unable to produce an English certificate.

There is, moreover, a serious practical danger arising from the refusal to register a trade mark in a foreign country, merely for want of a certificate of registration in the country of origin. It becomes known that the refusal is owing to the fact that the proprietor of the mark has no registration in his own country, and consequently has been refused protection for it in the foreign country. This gives opportunity to some trader in that country to apply for registration there of the identical or an almost identical mark in his own name. Instances of such registrations are known to have occurred in various countries, and to have been followed up by the exclusion from those countries of the genuinely marked goods of the true proprietor of the trade mark.

If, however, the object in view cannot be fully attained, and if some evidence of title from the country of origin continues to be insisted on, then another way of overcoming the difficulty would be for the foreign country to accept from the country of origin an official certificate of the deposit of the trade mark in the Trade Marks Office of that country, and of the claim of title thereby made, for the purpose of proving the proprietary claim of the owner of the mark and basing thereon an application for registration, even though actual registration had not been granted in the country of origin.

In the case of British "cotton" trade marks, a provision already exists in sub-section (12) of Section 64 of the Trade Marks Act of 1905, for granting such an official certificate of deposit in respect of any cotton mark sent in for registration, whether new or old. It would be a simple matter to make the provision applicable to trade marks for all goods. The form of the certificate gives the number and date of the application, the class of goods in respect of which it is made, and the length of time of user of the mark as stated in the application, and then concludes with the statement that the mark is "on deposit" at the Manchester branch of the Trade Marks Registry. A facsimile of the mark as applied for is attached, and the document is signed by the Keeper of Cotton Marks, and sealed with the seal of the patent office. Many of these certificates of deposit have been issued. The effect of them is to give official evidence of the applicant's claim, and there seems no reason why such a document should not be accepted in any foreign country as sufficient proof of his claim, to warrant an application for registration of his mark in that country.

These difficulties would disappear in any countries where it was made a rule to register foreign trade marks upon their own intrinsic merits, subject only to the trade mark laws and regulations laid down in each particular country, without requiring, as a necessary condition, proof of registration in the country of origin. They would also be overcome in any countries which mutually agreed that in cases of conflicting marks of each other's country, the test of title should be priority of user in the market in which the conflicting marks are used.

To sum up: I suggest that the following legal objects are worthy of the attention of the Federation:

1. To obtain the recognition and adoption of the Herschell clause by all commercial nations:

(a) By introducing it into the trade-mark laws of individual States, including the Trade Marks Act of Great Britain:

(b) By securing the insertion of its terms in commercial conventions between one country and another;

(c) By getting it made part of an International Convention.

2. To obtain the recognition and adoption by all commercial nations of the principle that in the case of a dispute as to the right to use a mark in any market the sole test of right shall be priority of user in that market, apart from any question of registration: and to effectuate this by the methods lettered (a), (b), and (c), above.

3. To procure the abolition of the requirement to produce a certificate of registration in the country of origin as a condition precedent of allowing registration of a trade mark in a foreign country.

4. To induce those countries where such abolition cannot be procured, to accept a certificate of the deposit in the country of origin of the trader's mark and his accompanying claim of ownership, as sufficient proof on which to base an application for registration of his mark in the foreign country.

KARAKULE SHEEP FOR CANADA

By Consul Wesley Frost, Charlottetown

Prince Edward Island, the center of the black-fox breeding movement, is also to become the first Canadian locality to produce so-called Persian lamb pelts. Nine Karakule sheep from the ranch of Dr. C. C. Young, at Belen, Tex., constituting all the Karakule sheep now on that ranch, will be transferred to the vicinity of Charlottetown, Prince Edward Island, in the immediate future. Dr. Young is spending a considerable portion of the present summer on Prince Edward Island, and thinks that the climate is suitable for the propagation of such Karakule breeds as the Doozbai and small Arabi of Bokhara, Central Asia. He will retain a large interest in the business after it has been brought to the island, although leading fox breeders are behind the enterprise. The number of animals in the herd which will reach Charlottetown is eleven, two of them being nonfur-producing breeds noted for their great weight.

The long-wool sheep of the Maritime Provinces, and particularly of Prince Edward Island, are declared by authorities of the Dominion Department of Agriculture to possess the finest luster of any in Canada, and also to produce an especially coarse and strong-fibered wool. It is anticipated that by crossing these sheep with the Karakule a strain of hybrids will result which will manifest the tight curls of the Karakule at birth together with the gloss and strength of the local breeds. Dr. Young's experiments in Texas and other parts of the United States, as observed and reported by the Bureau of Animal Industry, seem to indicate the probability of such an outcome.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

THE MANUFACTURE OF ELASTIC FABRICS

BY SAMUEL BROWN

(Continued from October.)

Last month I referred more particularly to a simple suspender web, with a plain weave on both face and back. It will be in order now to consider a web in which the face and back have distinctly different weaves. The most common of these weaves is the 3-leaf twill, which is popularly known as a satin face. This is used not only for suspenders, but also extensively for heavy corset trimming. A web of this character has a very smooth velvet-like feel, and if properly constructed, is free from that "rowy" effect which is so much in evidence in a plain web; and which is caused by the binder warp cutting down into the face. In the satin face the threads are bound only in the upper cloth on one pick in every three, so that each pick floats two picks above the cloth. Thus when contraction of the web takes place, these threads pearl up, and mass together in a velvet-like pile, which not only produces a smooth handling web, but also increases the thickness.

To prevent any prominence of the diagonal effect liable to appear on the twill weave, it is advisable to arrange the chain draft so that the twill weave will be made the reverse to the twist of the yarn. This arrangement results in filling up the twill canal. Six threads of face to each rubber thread is generally used, with only one binder thread, in order that the binder row may be small and easily hid with the velvet like face. For this type of web, a round or plain edge is desirable. This makes a contrast with the face and shows up both weaves to advantage.

Fig. 47 shows the harness draft of such

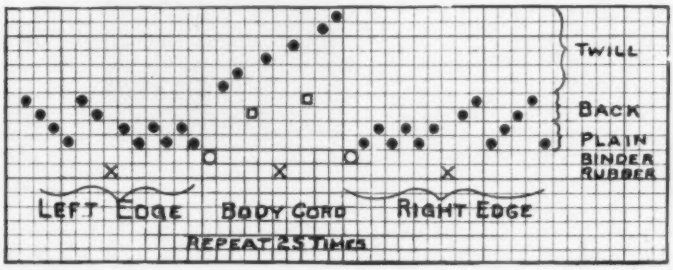


FIG. 47

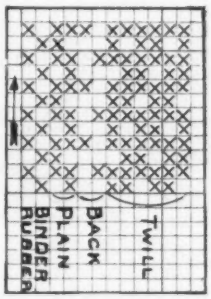


FIG. 48

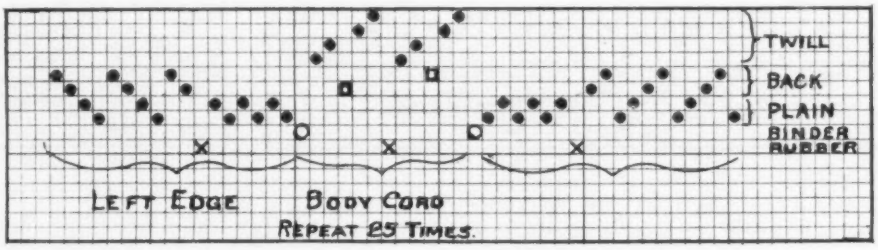


FIG. 49

a web, with a 6 thread face and 4 thread back, the back being drawn double in the harness. Fig. 48 is the chain draft for this weave. Following is the construction of a properly balanced web for standard goods, 1 1/8 inches wide:

Edge, 25 threads 2 60s
Binder, 26 threads 2/50s
Back, 50 threads 2/28s
Gut, 25 threads 2/20s
2 Face, 75 threads 2/50s
Rubber, 29 threads 34s
Reed ..... 23 dents per inch
Filling 2/26s
Picks ..... 66 per inch

In this web there are 150 threads on the face. It would not be practicable to run

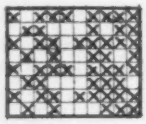


FIG. 50

this on one warp and weight them so that they would clear in the harness, not yet in the front shed. It becomes, therefore, necessary to put these warp threads on two warps of 75 threads each. A twill weave of this character could of course be made on three harness, but for the reason that it would be too crowded to clear, and for convenience in handling, it is advisable to use 6 harness. This arrangement will allow one face warp on the first, third and fifth harness, and another on the second, fourth and sixth. It will be noticed in this construction that there are four more rubber threads than there are body cords, which allows for two in each selvage. This becomes necessary, inasmuch as in a web of this character, one rubber would not have enough to contract the edge and the result would be frilled goods.

In making a web using the four-leaf twill, the harness draft of which is shown in Fig.

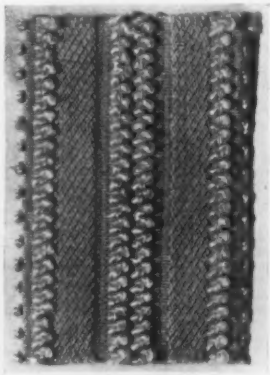


FIG 51

49, and chain draft in Fig. 50, we have about the extreme length of warp float which it is practicable to use in an elastic fabric. The float over 3 picks of the face piles up so high that in anything but a finely picked web, the effect is ragged and spongey. Following is the construction of a fine web of this character, extending over 25 cords, standard 1 1/8 inches wide:

Edge, 33 threads 2/60s
Binder, 26 threads 2/60s
Back, 50 threads 2/28s
Gut, 25 threads 2/20s
2 Face, 100 threads 2/80s
Reed ..... 23 dents per inch
Filling 2/26s
Picks, 66 per inch .. 1 1/8 in. wide

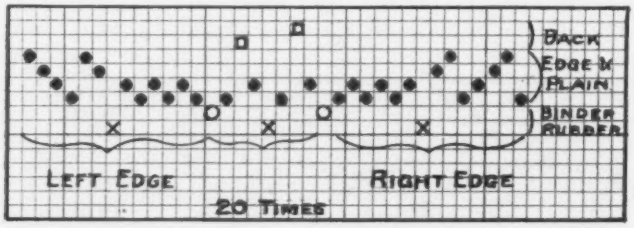


FIG 52

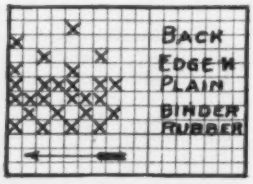


FIG. 53

The contraction causes the floating threads to pile up higher than those which are stitched tighter. This affords an opportunity for a combination of simple weaves, which may be so arranged as to produce figured effects by contrast.

Fig. 51 shows a web of this character, a combination of plain and twill, interspersed with heavy cord effects. For further elaboration it has raised cords and what is known as a picot edge made by the insertion of a single heavy thread at the extreme edge of the selvage, which floats outside at regular intervals. When the goods contract this thread pearls up in a bead-like form. In this arrangement the plain weave shown at the center and sides is bound down flat, while the twill stands up full and thick, and the cords and picot edge are even more prominent.

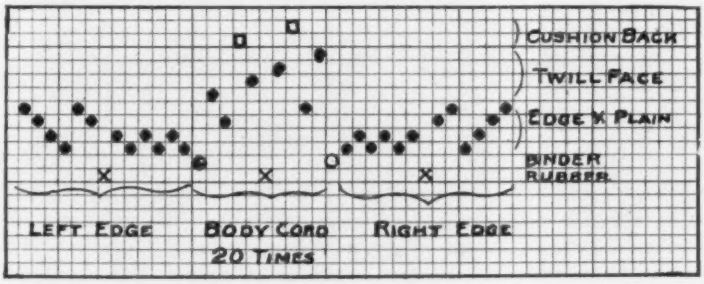


FIG. 54

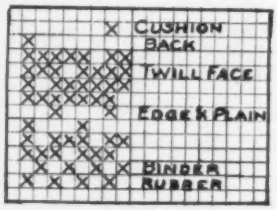


FIG 55

Another type of web which calls for special mention, and which is within the possible limits of a cam loom is designed to meet the requirements of what is known as the police and fireman brace. It is designed to withstand hard usage, and is usually made from 1 3/4 inch to 2 inches wide, and exceptionally heavy. The excessive weight is produced by the introduction of a very loose weave for the back of the goods, and the use of heavy yarn for the back warp, generally with four ends of 2/10s in the cord. The face is invariably a plain weave. While a heavy yarn is also necessary here, it will, of course, not have to be as heavy as the back inasmuch as the tightly bound face tends to restore the balance. Fig. 52 shows a weave of this kind. Fig. 53 is the chain draft. A construction of such a web, having 20 body cord and covering 1 3/4 inches in width, is as follows:

Edge, 25 threads 2/28s
Binder, 42 threads 2/20s
Back, 80 threads 2/10s
Gut, 20 threads 2/16s
Face, 80 threads 2/20s
Ribber, 22 threads 30s
Reed ..... 12 dents per inch
Filling 2/10s
Picks, 40 per inch .. 1 3/4 in. wide

Another web of the same type is known as farmers' web. This is also made extra wide and has the same element of weight in its heavy, loosely woven back as the police web. Instead of a plain face, the four-leaf twill is generally used, which still further increases the weight. The use of this soft weave on the back and face deprives the web of much of its desirable firmness. This is offset by the introduction of an auxiliary back warp, which is made in the plain weave and knits the filling more tightly together, thus increasing the firmness of the web. Fig. 54 shows the harness draft of this web, introducing the auxiliary back warp. Fig. 55 is the chain draft. A construction of this kind is as follows:

Edge, 25 threads 2/28s
Binder, 40 threads 2/20s
Twill face, 80 threads 2/16s
Gut, 20 threads 2/20s
Back, 40 threads 2/10s
Inside back, 40 threads 2/20s
Rubber, 22 threads 30s
Reed ..... 11 1/2 dents per inch
Filling 2/10s
Picks, 44 per inch .. 1 3/4 in. wide

PATTERN MAKING BY PHOTOGRAPHY

From the Textile Zeitung

Translated from the German by the Editor of the Textile World Record.

Dr. Erwin Quedenfeldt, principal of the Photographic Testing Establishment at Duesseldorf, Germany, recently described at the Crefeld Technical School a process which he had discovered for producing designs by photography. Natural products such as crystals, minerals, flowers, animal and vegetable products are used for the process. Old patterns can also be used for the development of new designs.

The camera is provided with a special apparatus by which the image is reproduced in manifold form with as much clearness and strength as with the ordinary camera. The process is similar to that of the kaleidoscope, but no mirrors are used as it has been found that the reflection of the image from the mirror results in making the photograph cloudy. The new process is very rapid and simple.

FIG. 1. A PATTERN FROM A SPECIMEN OF CRYSTALLIZATION

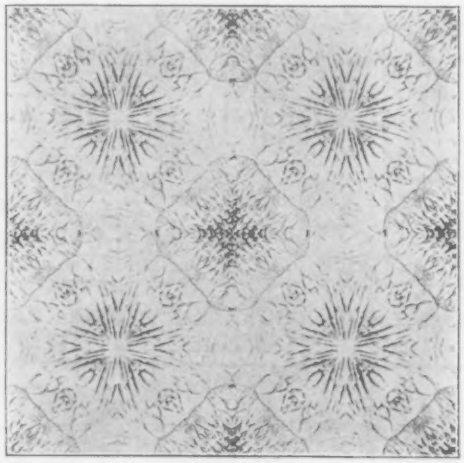


FIG. 2. DESIGN OBTAINED AFTER CUTTING AWAY PART OF THE SPECIMEN

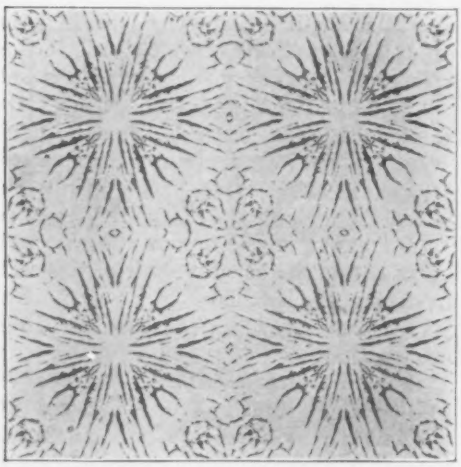


FIG. 3. SHOWING THE RESULT OF FURTHER CUTTING

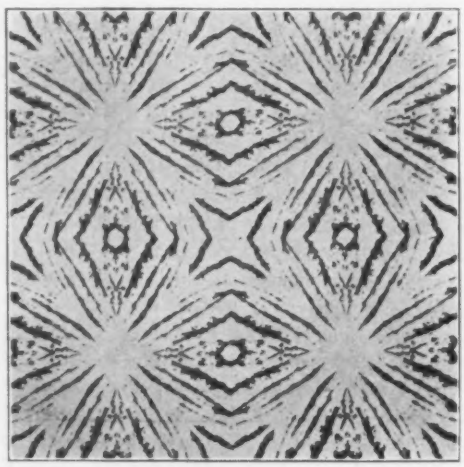


FIG 4. A REPRODUCTION OF THE CENTER PART OF THE PATTERN

The plate is exposed for the necessary time and then developed. The photograph is printed from the negative in the ordinary way and the design can then be enlarged or reduced as desired. A large number of different patterns can be obtained by cutting the object. This is shown at Figs. 1 to 4.

FIG. 5. A DESIGN OBTAINED FROM THE COLORED RING OF AN AGATE

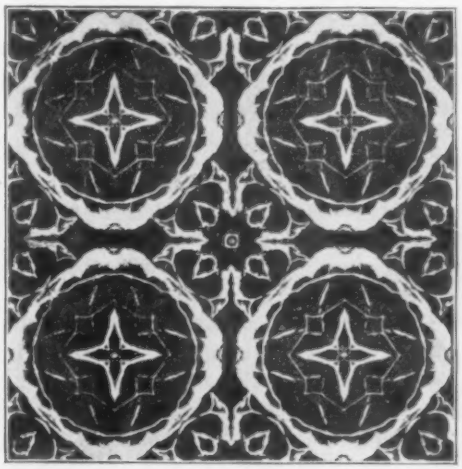


FIG. 6. A REPRODUCTION OF THE BLACK AND WHITE MARKING IN A PIECE OF MARBLE

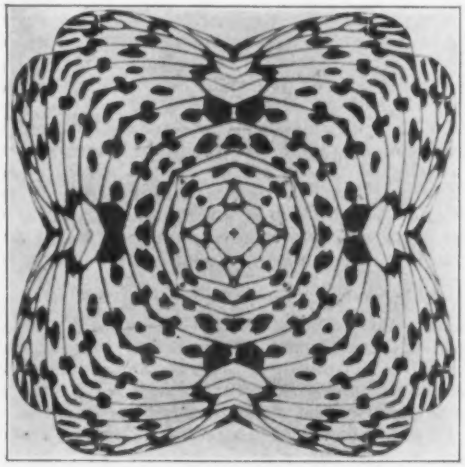


FIG. 7. RESULT OBTAINED BY PHOTOGRAPHING THE YELLOW AND WHITE WING OF A BUTTERFLY

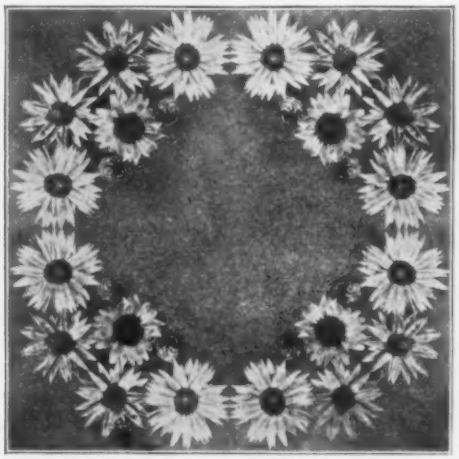


FIG. 8. RESULT OBTAINED FROM FLOWERS

Fig. 1 is a pattern obtained from a specimen of crystallization. Fig. 2 is the design obtained after cutting away part of the specimen. Fig. 3 shows the results of further cutting. Fig. 4 is a reproduction of the central part of the pattern. In this way a large number of interesting combinations can be made from one object.

Figs. 5 to 8 are other samples of the results obtained from this new process of pattern making. Fig. 5 is a design obtained from the colored ring of an agate. Fig. 6 is a reproduction of the black and white marking in a piece of marble. This design is a combination of two patterns obtained by photographing the same sample of marble. Fig. 7 is obtained by photographing the yellow and white wing of a butterfly. Fig. 8 is obtained from flowers. This process opens

up a rich field for the cotton print industry. It is recommended not as a substitute for the work of a designer, but as an important aid in obtaining new motives for his productions.

CAUSTIC SODA AND SULPHUR

From The Yorkshire Observer, May 7, 1913

Since the statement of General Botha in the South African Parliament on April 1st, that the Department of Agriculture saw no reason to withdraw their recommendation to farmers to use lime and sulphur and caustic soda and sulphur for the dipping of sheep, a personal letter of inquiry concerning the condemnation of these dips by the Bradford Chamber of Commerce has been received by Alderman J. E Fawcett, the President of the Chamber, from the Chief of the Department of Agriculture (Division of Sheep), Pretoria. In reply to this letter a communication has been addressed on behalf of the Bradford Chamber of Commerce to Pretoria, in which the whole question is traversed in detail. Appended are extracts from the communication:

As you are doubtless aware, Bradford is the center of the wool industry of this country, if not indeed of the whole world, and that larger quantities of wool are dealt with in this district than in any other part of the world. We therefore claim out of an incomparable experience to speak with authority on this subject. The attention of this Chamber was called in the year 1908 to the fact that your department had recommended the use of the dips named, and I have to inform you that at a large and representative gathering of the Wool Trade Section of this Chamber, which comprises all the leading firms in the trade, held on June 1st in that year, the following resolution was unanimously adopted:

"That this meeting expresses its strong opinion for the guidance of woolgrowers that any sheep-dip containing lime or caustic soda in any form in its composition, is a most undesirable application to the fleece, it being calculated to have an injurious effect upon the wool, which oft-times can only be detected in the processes of scouring, dyeing or manufacturing, and buyers are therefore naturally suspicious of wools from districts where such applications are in use. It is, therefore, in the interests of the sheepowners themselves, that we urge them to avoid the use of any dips into the composition of which lime or caustic soda enters in any form."

Of course we readily recognize that the first consideration must of necessity be the health of the sheep and the elimination of scab, but there are other dips which are quite as effective for this purpose as the two classes named, and which do not injure the wool to anything like the same extent, if indeed, at all. We do not know the nature of the experiments which have been made by your department on which your recommendation of the condemned dips is based. Probably they have been on only a small scale or have even been simply laboratory tests. But, as I have already said, the experience of this district is unique, and we are confident that our condemnation of these dips is well-grounded, and that they are injurious not only to buyers and users of the wool which has been so treated, but also to the growers themselves. The objections of the trade here to the recommended dips is quite as strong today as it was in 1908, and is based not upon a few small experiments, but upon a long experience of dealing with wool in enormous quantities.

REASONS FOR CONDEMNATION

We condemn the use of caustic soda and sulphur and lime and sulphur dips for the following reasons:

(1) Because any wool so treated will certainly be badly damaged, and is certain to fetch a lower price in the open market (as skin wool does) than wool which has not been so treated. This is clearly seen when it is stated that caustic soda and sulphur is used as sodium sulphide for fetching wool off the dead fleece.

(2) Wool treated with caustic soda and sulphur being partially dissolved, the resultant weight of the fleece is considerably less than if the wool had not been so treated.

(3) It makes the wool more difficult to scour; the caustic soda used combining with the sulphur, but on dissolving in water the caustic soda is set free and acts very powerfully on the wool, causing it to shrink considerably.

(4) The effect of all alkaline soda salts destroys the spinning qualities of the wool, decreases the elasticity of the yarn, and always makes pieces made from such yarn take a ruddy color in the dyeing. Wool which has been treated with alkaline salts will not spin to anything like as fine counts as the same wool which has not been so treated.

(5) Wool treated with alkalis has a stronger affinity for coloring maters than wool not so treated, hence, when the former is blended with the latter, the result is that the fabric made from such blend shows unevenness of dyeing, causing endles trouble and claims for damage.

I have only recently been asked by the Trades Commissioner for your Government if I could account for the fact that South African wools never realize in the market as good prices as Australian wools. There is no doubt that this difference is largely due to the fact that it is well known that South African wools, which would otherwise be equal to Australian, have been treated with objectionable dips, and therefore cannot be expected to give the same satisfactory results as Australian wools, which are treated with neutral dips.

ENGLISH NOTES

By Our Regular Correspondent

Lancashire has had many absorbing things to think about besides the signature of the new tariff. With raw cotton becoming so dear as to make short-timing inevitable, with no new business doing for weeks and the threat hanging over the industry of a lock-out in the spinning mills, matters of sectional interest have commanded little attention. The American market has been for a long time of direct concern only to producers of fine yarns, makers of light wash goods and of heavy linings. The present expectation is that the market will still be useful only to those parties. Their prospects are improved, were it only by the fixing of a settled basis. Regular business has been done in the past on certain cloths under 37 1/2 per cent. duty and a reduction of 10 or 15 per cent. in some of these is at any rate not a hindrance. As yet it is too early to tell in what new classes of goods business will become possible. When the direction of buyers' fancy has been ascertained, efforts will be made to adapt cloths to the most favorable rates of duty, exactly as is done for other protected markets. These efforts occupy time and their success depends upon temporary circumstance and the cooperation of customers. Some of the opportunities do not disclose themselves for months and some not for years.

* * *

Much more attention has been bestowed on the tariff settlement in Yorkshire, where there is also uncertainty as to the new classes of goods that will be brought into sale. The chances of selling worsteds are obviously better at 30 per cent. than at 100 per cent. and orders for the summer trade have been booked in small number. There have been orders also for better class carded woolens in light weights, but not upon a large scale. The voluminous sampling of wool, tops and yarns that has been carried on in recent months has not yet led to anything substantial. Meantime the position of nearly all parties to the wool industry is growing worse. Prices of raw material are high and firm and work is wanted. Spinners are sacrificing profits and making yarn to stock. The makers of men's worsteds all have looms standing and in the carded woolen districts the volume of trade is materially less than for three years past. The falling-off of Continental demand is mainly responsible for these effects. British exports of woolen yarns and fabrics have been large in the last nine months, amounting to $146,000,000, but a marked decline has set in. The shipment of goods from the Bradford consular district to the United States which was over $11 1/2 million in the first nine months of 1912 was only a little over $7 1/2 million in the nine months just closed.

* * *

The Textile Committee of the Anglo-American Exposition of 1914 which has promised its best services in organizing a British textile section of the San Francisco Exposition is rather curiously composed. The president is a London draper, like five others on the committee; half a dozen wholesale London drapers, two or three wholesale clothiers, one representative of the English Sewing Cotton Company, the secretary of a shoddy and mungo manufacturers' association, together with the president of the Silk Association and a few nondescript members constitute the whole. The absence of representatives of the larger industrial interests is strongly marked and there may be significance in the fact that textile distributors are straining after expositions while manufacturers as a whole are turning away from them. The British Silk Exhibition of a year or two ago was left almost solely to retailers and except for a few enthusiasts like Frank Warner of the Silk Association and the late Sir Alfred Apperly manufacturer-exhibitors are growing scarce. It is perhaps only a coincidence that those textile manufacturers who take most interest in technical education are also the ones who believe most in public expositions. The name of Sir Swire Smith added to those of the two last named will sufficiently illustrate the point.

The "setting-off" club" or "going-away club" or holiday savings fund—as it is variously known—is the natural and nearly necessary accompaniment of a uniform holiday week. The clubs are held in association with mills, churches, public houses and other institutions and their purpose is to secure that the operative shall have money to spend when the appointed time arrives. Every working week the man, woman or child puts his contribution into this kind of savings bank, paying in such sums as he can afford, and the whole is drawn out once a year to buy holiday clothes and pay for rail tickets to the seaside and lodgings. The money goes mainly to Blackpool, a Lancashire kind of Coney Island, where beds and attendance cost from 25 to 50 cents per person per day and where amusements are perhaps cheaper than in any place in the world. In one week this summer the human contents of thirty Lancashire cotton districts spilled themselves into that town with consequences that are likely to result in a rearrangement of holiday dates. About $1,250,000 was dissipated in this way by the Oldham people alone and it can be said broadly that not a cotton worker in Lancashire was without a few pounds of "Wakes brass" this year. It can be affirmed almost as completely that every cent of it was spent and that the loose cash remaining consisted principally of the half-dollar that every prudent Lancashire man leaves at home under the clock as working capital for next week. The clubs originated in Lancashire and are spreading elsewhere with the spread of the uniform holiday system. It is not altogether unusual for the mill or its officials to make themselves responsible for the savings and sometimes a contribution to the lump is given by the employing firm. Trips to the sea are the great events of English mill life and the manufacturer who has given his daughter in marriage, taken his son into the firm, or arrived at some other occasion for thanksgiving, presents his workpeople with day-tickets to Morecambe, Southport or Blackpool and pays some part of the additional expenses. Friends travel with them and the telegraph poles and walls blossom forth with notices of Smith & Co.'s trip, tickets so-much.

* * *

Salvarsan, an arsenical preparation which has obtained notoriety in another connection, is being used now by doctors in the treatment of anthrax. The disease continues to manifest itself among woolsorters and the latest death followed upon infection from Cape or Turkey mohair of the best quality, not from any low-grade material. In this case and in one other in which salvarsan has been tried in the Bradford area, some improvement was shown, although neither patient recovered. In foreign practice there have been two successful applications of this drug and special circumstances are blamed for the incomplete success achieved in Yorkshire.

A new form of industrial ailment, fortunately not comparable with anthrax, may be looked for by those who handle African silk, the produce of the Anaphe insect. One case of poisoned sweat glands has occurred in England, and several of rash and irritation in France, but apparently none in Italy where a good deal of this brown tussah-like material has been used. The danger lies in handling the fiber in the process of degumming and the results are at least unpleasant. The English case finally yielded, after some weeks of probably unfavorable treatment, to dressing with a very strong solution of a carbolic disinfectant. A French medical man has treated several cases successfully with an ointment of borate and mallows. The silk in point came from Uganda and, according to one respectable medical opinion, the poison must be a vegetable one.

* * *

The discoveries of Mrs. Ernest Hart of London, news of which have been published in America, have excited more notice in the one-cent illustrated journals than in industrial circles. She is known as a tenacious lady who has lost money in efforts to put ramie upon a commercial footing and her failure to succeed might owe a little to the amateurishly inept designs selected for the fancy fabrics produced as samples. On the

other hand there is nothing to show that the result would have been more successful in the end had the designs been better directed. Mrs. Hart's achievements in waterproofing seem to follow lines that have long ceased to be novel.

A manufacturer of decorative furnishing fabrics has reported some experiences in making brocade for curtains and for sofa coverings out of mercerized ramie yarn. The result was handsome, but prohibitively expensive. A pair of curtains described as being only of "cottage size" weighed 16 pounds some ounces and their cost was of course proportionate to their weight. The same fabric was made at a practicable price in mercerized cotton and also in linen and either was to be preferred to ramie. As curtains are made to hang in sunlight it is to be supposed that they would fade still more quickly than the ramie sofa covers, dyed with the best dyes, that have conspicuously failed to stand even transmitted light in one great hotel. These failings are perhaps no more generally known than those cited by J. H. Lester before the Textile Institute at Ghent. Quoting J. M. Matthews, he said that if the strength of ramie under twisting strains was taken as 100 that of cotton was 400 and of silk 600. An English carpet manufacturer who made some employment of ramie is disposed to try the material again when some elasticity has been lent to it, but not sooner.

* * *

The Manchester agitation for a more drastic application of the compulsory working clause of the English Patents Act has drawn a reply from a firm of patent attorneys. It has already been said in these Notes that the proposition is to put upon the patentee the onus of proof of working. The retort is (1) that the principle is contrary to that of English law, (2) that English as well as foreign patentees would be affected, (3) that laws all around the world would be assimilated to the English model, with the eventual result that foreign patent rights would be estopped and the manufacture be maintained only in that country where it can be conducted most economically and under the longest and cheapest protection. In respect of point 2, it is urged that a business competitor would only need to petition to revoke a patent in order to ascertain whether and, if so what and where, any business was being done in the patented article. The court has sharply discountenanced attempts hitherto made in this direction.

* * *

The principle of halving the advantage, which is the great solvent of disputes over improved method of working in Lancashire, is being adopted by a Yorkshire worsted spinning firm. In the country district in point thirteen shillings ($3.12) is the standard wage for girls minding one side and a half of a spinning frame. Piece rates have been adjusted to produce the same wage from 1 1/2 sides or frames, but the girls are set to mind two full sides instead. There is a gain of one-third in production and of this advantage the operative gets half, so that the new piece wages, of around $3.60, involve no extra cost in themselves and reduce the trouble of supervision, as the spinner has her own incentive to press on with the work.

A document of 1587 found in the statutes of the Parliament of Scotland throws some light on other days. Johne Gardin, Philip Fermant and Johne Banko "flemyngis, strangearis and workmen" were permitted to exercise their craft of making "searges, growgrains, fusteanis, bombesies, stemmingis, beyis and covertors of beddis." There were, however, precautions to observe. The Flemings had to remain five years and to bring in 30 persons "wabsteris, walkaris . . . as alsua ane litstair"—the ancient Scottish way of saying weavers, finishers and one dyer. They had not to suffer any person of their nation to beg or "trouble this countrie for povertie". They had to take no apprentices "bot scottis boyis and madinnis" and before any other the "burges bairnis of Edinburgh". They had a "patent place . . . upoun the ordinar mercat dayes" to sell their stuffs and they were forbidden to sell wool or worsted unmanufactured. One thousand marks was awarded them and "his Majestie appointit

ane honest and discreit man, Nicolas Eduart, to be visitor and over sear of the said craftsmen . . . and to try the sufficiencie" of their goods. In length, breadth and signs their goods had to be "conforme to the rule and stile of the buik of the craft".

THE ANTHRAX PROBLEM

BY WEBEREI

The problem of industrial diseases is one that the Home office in Great Britain pays strict attention to and the detailed reports given by the Chief Inspector of Factories are of more than passing interest. In this report for 1912 full accounts are given relating to the cases of anthrax in wool, horsehair, hides and skins and these show that the diminution in the number of cases which proved fatal is more marked than diminution in the number of cases as a whole.

Thirty-one cases are shown as directly due to handling wool and of these six proved fatal; seven cases relate to the handling of horsehair and fifteen to hides and skin, but none of these proved fatal. Only four cases were reported of females contracting the disease, all of whom recovered. The details as to the seven fatal cases are given below and it is importing to note that three relate to internal cases:

Locality	Occupation	Situation and Symptoms	Material
Bradford	Wool puller	Internal	Bussorah, Syrian, Scotch, Persian, E. Indian, Russian
Shipley	Card Grinder	"	Persian, Russian East Indian
Witney	Blanket "puller"	Chin	Probably East Indian
Saltaire	Sorter	Internal	Turkey Mohair
Shopley	Card Minder	Neck	East Indian Wool
Bradford	Willeyer	"	Mohair Wastes, English and Colonial

The Witney fatality is rather remarkable in that the patient only handled the material in the woven state and no previous cases at the factory were known.

As showing the classes of materials handled by the persons infected the following table showing the classes of wool mentioned in the thirty-one cases is of interest. East Indian mentioned 19 times. Persian mentioned 9 times. Van mohair mentioned 4 times. Russian mentioned 3 times.

Special mention is made in the report of the Chief Inspector to the work of the Anthrax Investigation Board, both as regards its bacteriological investigations and detailed inquiries as to the source of infection as regards material. The numerous instances, it is stated, in which anthrax was found in East Indian wool sets at rest the difficulty in which the Board has been in not knowing whether bales of East Indian wool really contained anthrax or not. This inquiry and that into skin mohair have compelled the Board to give up the hope that it might prove possible to say "No blood, no anthrax," seeing that anthrax spores have been cultivated from material in which there was no evidence of blood.

The report into the question of chemical disinfection have unfortunately concluded with results that are too uncertain for practical purposes, but detailed and exhaustive experiments as to the value of steam disinfection are being made. These experiments so far seem to show that the steaming of blood clots will kill anthrax spores in about 15 minutes. This of course is when the wool is in a loose state so that it can be thoroughly penetrated by the steam. It must be obvious that the difficulties in the way of disinfecting wool in bulk by steam may make this method impracticable for ordinary use—quite apart from possible injury that may be done to the fleece, especially in the finer qualities.

Prof. Schattenfuch's method of steeping the wool for 24 hours at a temperature of 67° F. in a mixture of 1 per cent. hydrochloric acid and 8 per cent. common salt has upon experiment so far proved disappointing. The same remark also applies to the Seymour-Jones process in which formic acid is used. The trouble is that there is a tendency towards neutralization of the acids by the ammonia and other substances such as lime salts in the wool.

The chief points in connection with the prevention of wool sorters' diseases have been ably summed up by Dr. Eurich, the well known expert. as follows:

Some knowledge of the precautions (if any) veterinary or otherwise, taken in the country of origin is desirable.

It is desirable that consular bodies be asked to report outbreaks of anthrax.

Steeping, with or without the addition of a disinfectant, should be restricted to wools and hair that have been washed before they reach this country, and to skin-wools obtained by the wet process.

Blood clots should be carefully sought for by men specially taught to recognize them; and when found they should either be destroyed or treated with an antiseptic.

The handling of scheduled wools should, after the process of sorting, be reduced to a minimum by adoption of mechanical convection and feeding.

The workman can be protected from dust still further by an extended use of fans, and by their more direct application to the site of origin of the dust.

The wearing of light and efficient respirators should be enjoined upon card grinders, and upon all who work in the immediate vicinity of chutes when these are in actual use.

Given such precautions, wool sorters' diseases will certainly be minimized, but we still look forward to the discovery of a system or method of disinfection that will render wool workers practically secure from the danger of contracting anthrax.

THE MERCHANDISE MARKS ACT

From the London Times

Chiefly by the action of public-spirited bodies of traders, much has been done under the general provisions of the Merchandise Marks Act to suppress the misdescription of textile goods. In all parts of the country traders have been reminded that to attach a false trade description is a serious fault, and cautions of this kind have been concerned with a large variety of textile goods. Without professing to make an exhaustive list of all the cases which have engaged the attention of magistrates during twenty-five years, ample evidence upon this point can be adduced.

A large number of prosecutions have warned drapers specifically against selling as "linen" goods which are in fact linen and cotton mixtures. Some of the most recent cases are those directed against the rather prevalent practice of selling the chemical product, artificial silk, as "silk," "art silk," or some similarly ambiguous name. But other examples in even wider fields are not difficult to quote. Traders have been cautioned against describing as "flannel" cloth that is not all wool; or applying the words "indigo-dyed" to articles containing no indigo; or calling goods "all wool" when they contain cotton in addition. Punishment has been inflicted for the false use of geographical qualifications, including "Scotch," "Kerry," "Harris" on tweeds, and "Witney" on blankets.

Sectional and private interests have been incidentally served in defining the use of these terms, but the interest of the consumer in getting the article for which he calls and pays has been upheld. By common admission the Act has been highly successful in operation; it has been accepted as a model throughout the Empire, and it is the admiration of a large number of persons in the United States, where "pure textile" bills recur with marked persistency. In the most famous cases under the law the decision has turned upon the point of trade custom, and especially of custom at the date immediately preceding the passage of the Act.

Left to themselves, textile manufacturers as a whole are not prone to exaggerate the value of common names, and the general effect of their traffic in words is to broaden and corrupt rather than to narrow their meanings. The fact is seen in the general acceptance of good names wheresoever found, and their use in senses which differ widely and are sometimes diametrically opposed. The case may be unfortunate, and doubtless a wiser dispensation would attach due values to words; but there is no room for doubt about it. Samples, not names, are the things in which manufacturers commonly deal, and the sample being everything, its name is nothing.

The Merchandise Marks Act thus far has served to uphold standards in long-established use. A resolution by one important body of manufacturers betrays a disposition to make it instrumental in upholding new standards still to be fixed and legalized. The following is the resolution:

That, in the opinion of the Council of the Silk Association, the time has arrived when, in the interests of the purchasing public and of the honest description of goods, all fabrics purporting to be silk, and silk goods mixed with other fabrics,

should be graded according to their purity, and, subject to certain standards to be legalized, defining such quality in degrees of purity analogous to the carat standard for gold; and that there should be, for instance, agreed standards as to pure silk, standard silk, silk and weighted silk with degree of weighting; also that a special committee be appointed.

The effect of the legalization of such standards would manifestly be to give currency to distinctions which at present are not recognized and to terms that have as yet no definite meaning. The public have their grievance against a system which leaves them exposed to the risk of buying as silk articles composed as to one-half or three parts of salts of tin. Manufacturers of pure silk as evidently have a grievance against practices which prejudice the sale of their goods by earning for silk in general a bad name, and are carried on almost exclusively by their foreign rivals. The position of silk is in some sort exceptional, amongst fibers at large, and the proposal may convey the germ of a remedy.

The proposal is likely enough to meet with the same objections as others which have been propounded in different countries (albeit not by manufacturers). It is doubtless truer of silk than of some textiles that a correct statement of the composition of its fabrics is a good clue to its value in use. It is not, for instance, infallibly the case that a mixed woolen is cheaper to make or better to wear than a cloth composed purely of wool. The distinction between them is properly preserved, but the nominally superior is in some circumstances on balance the worse bargain of the two. The point is not an argument against distinguishing, but is only brought forward to show that valid distinctions become misleading in some instances. This is the case when a description attached gives an accurate technical analysis of the goods in point; and a description which is only that of the broad class to which the fabric belongs can hardly be less capable of misleading.

There are objections of principle to laying restrictions upon goods of any one sort unless goods similar and dissimilar are equally dealt with. A case for regarding silk separately from cotton and wool may be made out in the same way as one for the precious as against the base metals. As yet the overwhelming evidence is not forthcoming and it rests to be shown that standards of purity for silk in dresses, neckties and hats are more vital to the public welfare than standards for the leather in boots.

There is the objection also upon the score of convenience, for while it is easy to stamp a piece of silk upon its end, its label, or its wrapper, it is not so practicable to impress every portion of the piece, and still less to exhibit the stamp upon silk made into a garment. The practical difficulty entails some trouble in supervision, and although this may be met in part by the allowance of exceptions, the objection is not without weight. The outcome of new regulations is nearly always difficult to foresee, and is perhaps most often other than what was expected. The proposition will not have been made in vain if the outcome be no more than a new spirit of inquiry into the origin and composition of the silk goods that are sold over the drapery counter.

HUMIDITY IN THE COTTON MILL

BY JOHN WALLACE

From the Indian Textile Journal

The influence of the moisture in the air upon cotton fiber in the process of manufacture was known in India long before this industry was practiced in England; fine spinning was therefore carried on in underground chambers, which had a temperature that approached the mean of twenty-four hours, and the air, when too dry, was moistened with the aid of wet matting and wet screens. Certain fine yarns were spun only during the rains. When factories were introduced, the floors were flooded with water in the dry season and all windows were closed, resulting in a damp but very foul and unwholesome atmosphere. Systematic moistening by means of sprinklers and humidifiers is barely thirty years old, and systematic ventilating and moistening together have so far made very little progress in India, although in mills, where the latter system has been adopted, the results have been in every way satisfactory.

It is well known that dry air renders the cotton fiber harsh, brittle and difficult to spin or weave: it is further known that when the proper moistening of the air, the wet bulb hygrometer is used which, with the aid of a table of reference, indicates the percentage

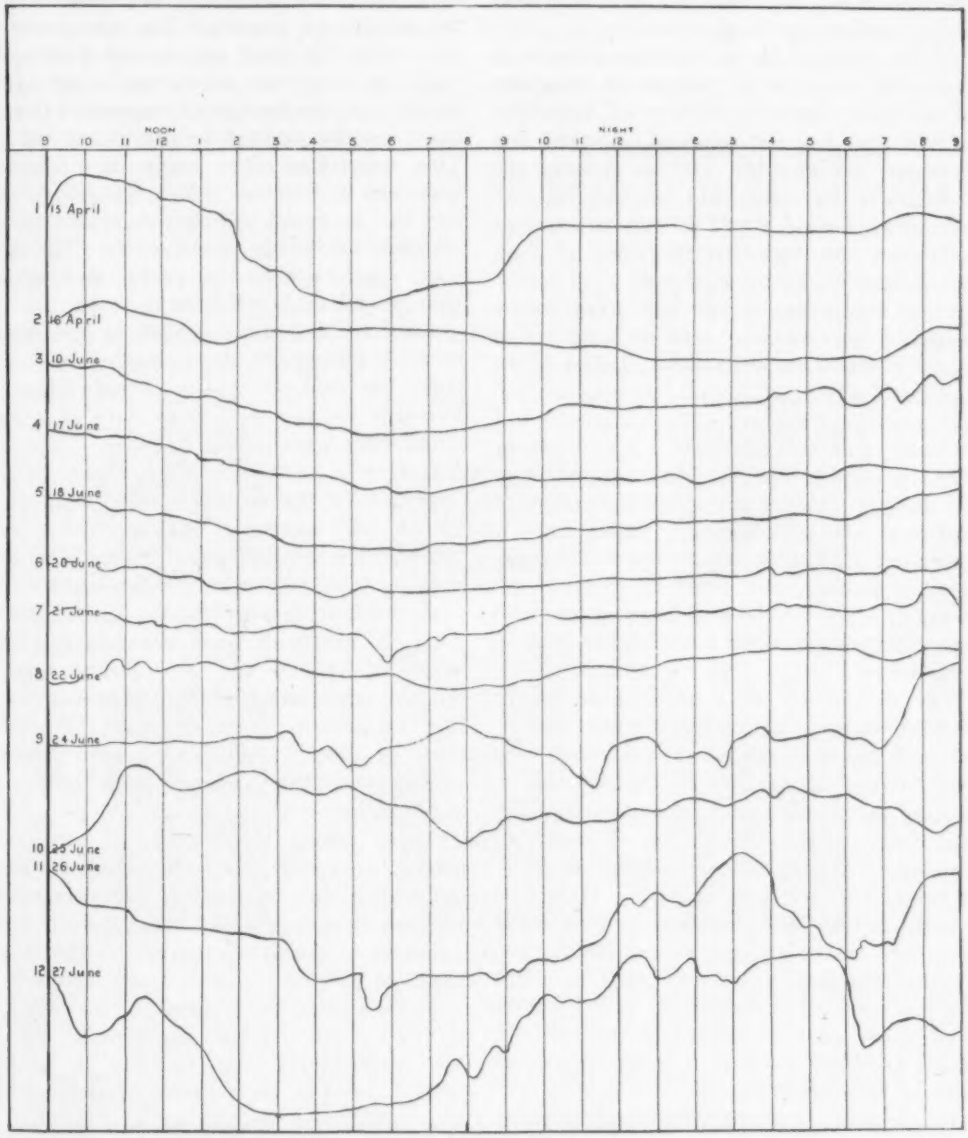


Diagram of curves showing the movement in length of a band of canvas 70 feet long suspended horizontally in tension by a weight of 2 pounds. The movement read vertically is due entirely to changes of humidity in the air at Bombay.

fiber contains 8 1/2 per cent. of moisture, it is in the best condition to withstand the very rough treatment it receives, especially in the preliminary processes. As a guide to the of moisture in the air, but affords no clue to the amount of moisture in the cotton in process of manufacture. It is nevertheless desirable that at all times this amount should

be ascertained continuously throughout the working day, for not only does the humidity content of the air change continually throughout the day and night, but the cotton itself contains a varying amount.

On an average day a moderate amount of additional moisture is sufficient to bring the air into the desired condition of humidity; by half past two the necessary amount has increased considerably, and as evening approaches it diminishes, but two days in succession are rarely alike, so that an attempt to regulate the supply of moisture by hand would require unusual vigilance.

High temperatures do not seem to be necessary for spinning and weaving. The report of the Textile Factories Labor Commission, India 1906, quotes an English mill spinning 135s yarn with temperatures of 81° dry bulb and 71° wet bulb. Also weaving sheds in which the dry bulbs ranged from 55° to 59°. While the effect of excess of moisture has a debilitating effect on the operative, it offers no advantage in the processes of manufacture; it should therefore be avoided, especially in a country where mill temperatures are liable to be higher than in England.

The desirability of a uniform degree of humidity in mills during the process of manufacture has recently been illustrated in a very interesting manner in the "Notes on Testing and Sampling" that appeared in the Handbook of the Manchester Chamber of Commerce Testing House, of which we gave an account in our issue of April. Here it is stated, on the best of authority, that a 40s yarn has tested to 39s on a humid day, whereas the same sample weighed on a dry day has been found to be 41s. Thus a little over 4 per cent. of difference in humidity would alter the count of a given sample of yarn by two numbers.

Changes in the moisture content of yarns are accompanied by a change, not only in weight but also in thickness of the fiber, and this in woven fabrics results in an aleration of length. Taking advantage of this peculiarity, the accompanying chart of curves has been prepared from the movement of a piece of cotton cloth six inches wide and 70 feet long suspended horizontally and fixed at one end. This cloth had been carefully freed from size, and was kept in tension by a weight of two pounds. The movement of the end of this band was recorded automatically on a cylinder in curves of 24 hours' length, and the amount of movement is indicated by the vertical height of the curves. This experiment was made in a covered verandah in Bombay, which was half glazed and half louvered, giving free access to the air while excluding violent winds. The cloth was thus exposed to every atmospheric change and sheltered from the rain.

Curves 1 and 2 were made in the month of April during the dry season. They illustrate the changes that may take place in humidity on two successive days at a time when there is no rain.

Curves 3, 4 and 5 were taken at the approach of the monsoon under dull skies and in calm weather. Curves 6 and 7 were taken in fair weather, but the wind blew with varying force while No. 7 was recorded.

Curve 8 represents the movement during a day of rain with short intervals and little wind. Curves 9 and 10 indicate days of varying wind without rain, and curves 10, 11 and 12 were recorded in typical monsoon days of wind storms with heavy showers, during which the band varied in length by 1 5/8 inches.

These curves were prepared, not as a record of relative humidity, but to show graphically the influence of the varying atmospheric moisture upon the cotton fiber. In some of the first experiments the movement of the band corresponded roughly to 1/16 inch per cent. of humidity, as indicated by the wet and dry bulb hygrometer, but the last three curves seem to have so far lost their relation to the hygrometer as to render that instrument useless as an indicator of any degree of moisture in the cotton. While the thermometers remained almost stationary, the band continued to shrink to its minimum observed length without losing its sensitiveness to change, and as every change of length is due to a change in the amount

of moisture in the cotton, monsoon weather, to judge by the appearance of the last three curves offer no better guarantee for uniformity of spinning than any other weather.

The experiment was then continued by means of a percentage balance, which was fixed conveniently near to the recording cylinder, and on it was suspended a piece two feet long of the same canvas cloth that produced the curves. This was dried at a temperature of 212° F., and in its dry condition was counterbalanced by a weight equal to 3 1/2 ounces. In a short time, August 3rd, it had absorbed moisture that required 9 per cent. additional weight, and it continues to follow closely the movement of the pencil on the recording drum, a slight discrepancy being observable between the upward and downward movement of the pencil, as the former is made against, and the latter with the gravity of the 2-pound weight. But the amount of movement of the 70 feet of canvas per centum of moisture absorbed differs widely from the indications of the hygrometer; the movement between 9 per cent. and 10.4 per cent. of moisture absorbed is .75 inch, which is equal to .525 inch per centum of saturation. In other words, it means that the force developed by the six-inch wide band of canvas, when its weight is increased by one per cent. of moisture is equal to two pounds lifted a full half inch. This points clearly to the possibility of controlling automatically the valve supplying water to humidifiers, so as to meet the constantly varying demands of the atmosphere of a cotton mill.

A HAND BOOK OF WEAVES

By G. H. Oelsner, Director of the Weaving School at Werdau.

Translated and Revised by Samuel S. Dale

This Series began in July, 1911

Fig. 1312, used for woven felt, is a broken 1 up 3 down twill on face and a broken 3 up 1 down twill on back, woven 1 face, 1 back, 1 stuffing pick. After each two picks (1 face 1 back) there is inserted a stuffing pick which lies inside the fabric. Above this pick is raised every warp thread which is raised above the preceding or succeeding pick.

FIG. 1311

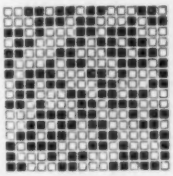


FIG. 1312

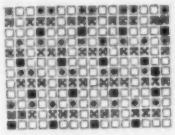
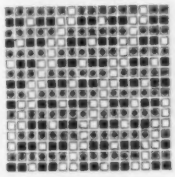


FIG. 1313



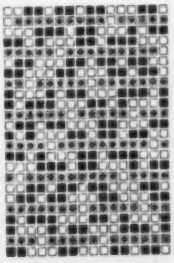


FIG. 1314

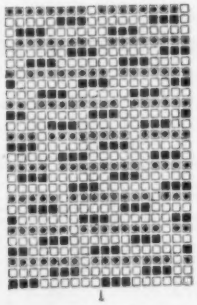


FIG. 1315

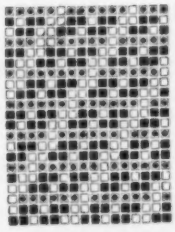


FIG. 1316

Fig. 1306, 16-shaft, woven 2 face, 1 back.
Fig. 1315, woven 2 face, 1 back.
Fig. 1316, 7-shaft, woven 2 face, 1 back.
Fig. 1312, woven 1 face, 1 back, 1 stuffing.

TRICOT WEAVES

Cloths having the face broken with narrow and uniform furrows or ridges to resemble knitted fabrics are called tricots, the

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name being derived from the French "tricoter" to knit. When the furrows run lengthways or in the direction of the warp, the cloth is called "tricot long". If the furrows run crossways or with the filling the fabric is called "tricot cross".

The simplest way of obtaining a tricot effect is by alternating a thread of right twist with one of left twist in both warp and filling. The reversal of the twist causes a ridge or tricot, which is very effective in light fabrics. Combinations of tricot long and tricot cross effects can be made by a suitable arrangement of threads of different twist in both warp and filling.

FIG 1317

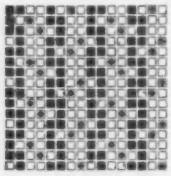


FIG 1318

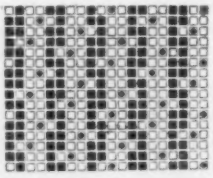
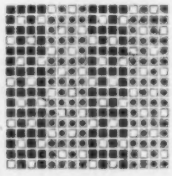


FIG. 1319



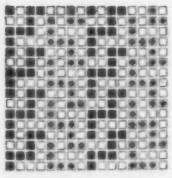


FIG. 1320

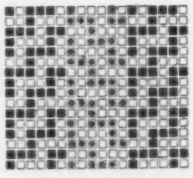


FIG. 1321

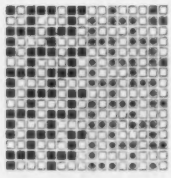


FIG 1322

TRICOT LONG

Tricot effects are also produced by weave construction. The tricots at Figs. 1317 and 1318 are made by alternating two threads of a warp weave with two threads of a filling weave. Fig. 1317, 2 threads 3 up 1 down, 2 threads 1 up 3 down. Fig. 1318, 2 threads 4 up 1 down, 2 threads 1 up 4 down. Combinations of 2 up 1 down with 1 up 2 down can also be used for this purpose.

At Fig. 1319 a group of 4 warp threads is woven plain on alternate picks, the other picks floating on the back. The plain weave and float are transposed for the next 4 threads, the back pick interlacing the warp in plain weave order, while the other pick floats on the back. This exchange of position after each 4 warp threads causes a rib or tricot line, and gives an elastic fabric. It is suited for a worsted tricot for dress goods with 150 to 170 picks of 1/70s to 1/80s worsted per inch.

For heavy tricot cloths transposed double weaves, as shown at Fig. 1320 are used. In Fig. 1320 the first 4 warp threads form two plain cloths, one above the other, and not stitched in any way. After the fourth thread every back pick comes directly to the face, while the face picks pass to the back. In this new position two plain cloths are again

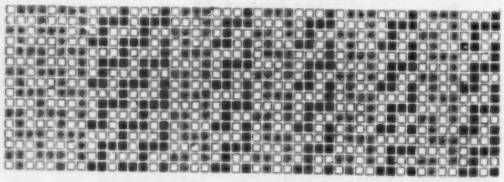


FIG. 1323

made for 4 threads when the back and face picks again are transposed, resuming their original position for another four threads This successive transfer of the filling from face to back and from back to faoe makes one compact fabric.

At the point where the face and back picks are transposed a back warp thread, woven 1

up 3 down, breaks with the adjacent face warp thread, woven 3 up 1 down, as shown by threads 4 and 5, Fig. 1320. This sharp break tends to separate the two adjacent face warp threads, 3 and 5, Fig. 1320, causing the face warp to form groups of two threads each. Threads 1 and 3 lie close together, as do threads 5 and 7, developing the tricot effect.

Fig. 1320 may also be considered as a back warp weave with a broken 3 up 1 down twill on the face and a broken 1 up 3 down twill on the back, the two weaves being so adjusted as to cause the break already described. By an increase in the width between the breaks the double plain weave is clearly developed as shown at Figs. 1321 and 1322; the weaves alternating every 6 threads in Fig. 1321, and every 8 threads in Fig. 1322.

FIG. 1324

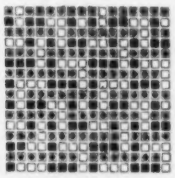


FIG. 1325

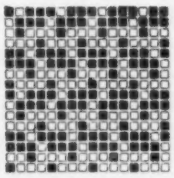
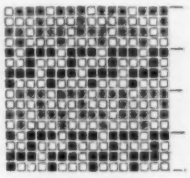


FIG. 1326



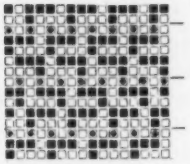


FIG. 1327

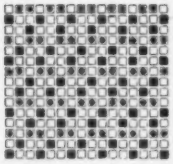


FIG. 1328

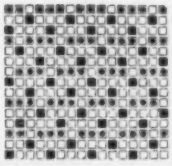


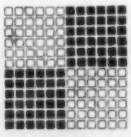
FIG. 1329

Fig. 1323 shows a pattern with tricot stripes of different widths.

Very heavy tricot cloths are made with extra back warp or filling. Fig. 1324 shows the tricot long, Fig. 1320, with a back filling stitched in 7 up 1 down order.

Tricot long effects are frequently used for fine woolen goods in which the face warp consists of woolen yarn twisted with organzine silk.

FIG 1330



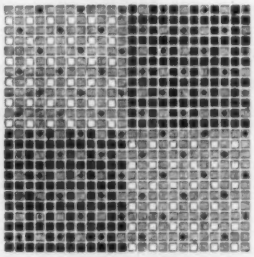
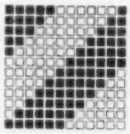


FIG. 1331

FIG. 1332



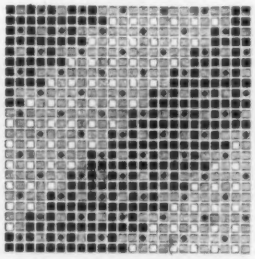
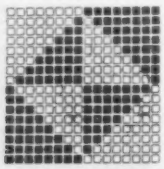


FIG. 1333

TRICOT CROSS

Tricot cross effects are obtained by turning the tricot long weaves one-quarter round, thus transposing the warp and filling. Fig. 1325 shows 2 threads of a broken 3 up 1 down twill alternating with 2 threads of a

FIG. 1334



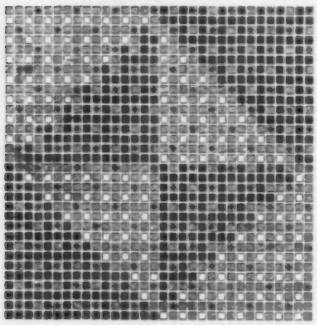


FIG 1335

broken 1 up 3 down twill. The filling threads are arranged to prevent a sharp break like that in the warp of the tricot long, Fig. 1317. The number of tricot effects can be increased by using heavier filling for the picks that float on the back 3 up 1 down.

Fig. 1326 is a cross tricot weave obtained by turning Fig. 1320 one-quarter round to bring the back threads in the filling. It is shown at Fig. 1327 with a stuffing pick in each stripe to increase the weight of the cloth.

Fig. 1326 may be considered a double plain weave with face and back warp threads transposed every 4 picks. The width of tricot effect is not increased as compared with that in Fig. 1326, hence it is better to consider it a back filling weave with the face woven with a broken 1 up 3 down twill, and the back with a broken 3 up 1 down twill, the two weaves being adjusted to cause a break by bringing a single riser on a face pick next to a single sinker on a back pick.

Fig. 1328 shows a back filling tricot weave, 2 face 1 back. The face weave is a 1 up 2 down twill to the right; the back weave a 2 up 1 down twill to the left. Each sinker on the back pick comes next to a riser on the preceding face pick, producing the break or tricot effect.

Fig. 1329 shows a similar arrangement with a broken 1 up 3 down twill on the face and a 3 up 1 down twill to the right on the back; woven 2 face 1 back.

FIG. 1336

FIG. 1338

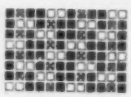
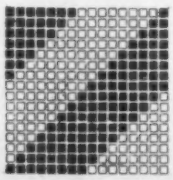
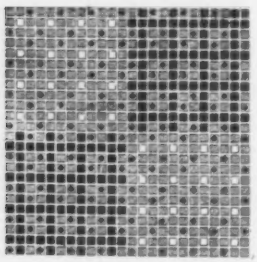


FIG. 1339





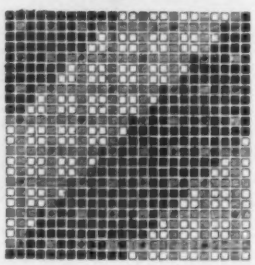


FIG. 1337

FIG. 1340

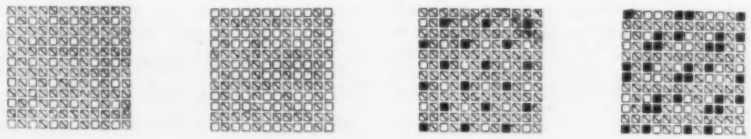
In tricot fabrics the effect depends in large measure upon the correct adjustment of the set of warp and filling, and upon the relative

size of the warp and filling yarn. Thus in Fig. 1326 the tricot effect is made more pronounced by increasing the relative size of the filling yarn.

CLOTHS WITH AN EXTRA INNER FABRIC

If the threads of a fabric float for long distances it is frequently necessary, in order to prevent slipping of the warp and filling and to make the cloth more durable, to introduce an extra inner fabric, which is usually woven with a plain weave. Fig. 1331 is

FIG. 1341 FIG 1342 FIG. 1343 FIG. 1344



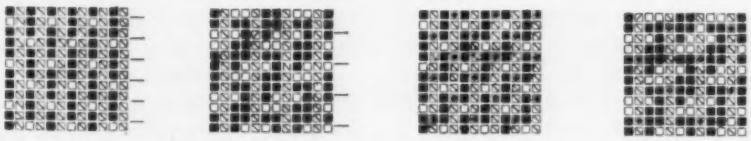


FIG. 1345 FIG. 1346 FIG. 1347 FIG. 1348

a 6 up 6 down basket, Fig. 1330, woven 1 and 1 with an inner plain weave. It is drafted as follows:

1. The cotton warp and filling threads for the inner fabric are shown by shaded squares to distinguish the inner from the outer threads.

2. The inner plain weave is drafted with dotted circles on the shaded threads.

3. The weave for the outer threads is marked with black squares.

4. The inner and outer weaves having been drafted as above, it is now necessary to raise the outer warp threads above the inner picks in the squares in which the outer threads float on the face. Where the outer warp is above an outer pick the outer warp thread is also raised above the succeeding inner pick, thus bringing the inner pick below the outer warp.

It is also necessary to raise the inner warp threads above the outer picks where the latter float on the back. Where an outer warp thread is raised above an outer pick, the adjacent inner warp thread at the right must also be raised above the outer pick, thus bringing the inner warp thread above the outer filling.

No change is necessary in the squares where the outer picks float on the face, because the outer picks come above the adjacent inner picks, while the outer warp floats on the back.

These operations of drafting may be stated thus:

Place a riser to the right and also above each riser of the outer weave.

The complete draft is shown at Fig. 1331.

Figs. 1331, 1333 and 1355 are weaves for cloths with extra inner fabrics, the outer weaves being shown at Figs. 1330, 1332 and 1334 respectively.

When the fabric is laid 2 inner 1 outer, Rule 4 is changed to the following:

Place a riser at the right and left as well as above and below each riser of the outer weave, see Fig. 1337. Fig. 1336 is the ground weave. On the other hand, when the cloth is 2 outer 1 inner, Rule 4 is changed to the following:

Place a riser at the right of and above each riser on every outer thread that is followed by an inner thread, Fig. 1340. Fig. 1339 is the ground weave.

Fig. 1338 shows a broken 3 up 1 down twill to which an extra warp thread is stitched plain, 1 up 1 down with the filling. The warp is 2 regular, 1 extra. The two weaves are so adjusted that the extra warp threads are covered by the regular threads.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

BLEACHING KNIT GOODS

Editor Textile World Record:

Please advise us as to the best method for introducing the caustic soda solution into an iron pressure boiling kier. Also advise as to the best method of dissolving the caustic soda, etc., and state the best method of conveying the goods out of kier into a bleach tank of concrete material, giving a sketch if possible, size of bleach tank 8 inches by 8 inches, with a line of shaft running directly above one side. Oldtown (2202).

There are several methods of introducing the liquor into high pressure kiers and it is difficult to say which is the best. If the kier is of a special make there is generally an apparatus attached to it for this purpose. In some kiers the liquor is run in by gravity from the dissolving tank, while in others it

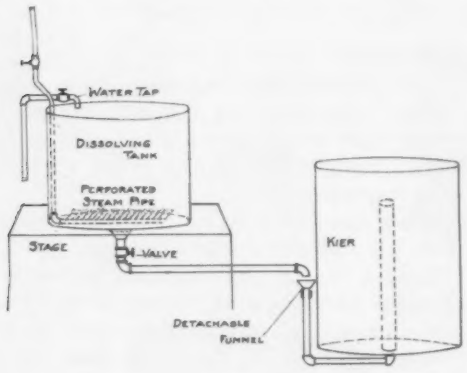


FIG 1

is pumped in by centrifugal and rotary pumps. Still another way is to have injectors attached which injects the liquor into the kier in the same way that is applied to boilers. If the kier is an ordinary high pressure kier without any patent apparatus attached, the best way to get the liquor into the kier is by gravity. This method is illustrated at Fig. 1. A dissolving tank is placed on a stage with the bottom higher than the level of the top of the kier. This should be an iron pan or tank with a perforated steam pipe extending around the bottom with an outlet and a valve attached which is closed until the caustic is dissolved. A connecting pipe runs to the different kiers with stop valves placed close to the outlet near the kiers. One mixing tank will be enough to supply four or five kiers. When ready to use close all the valves to the kiers except the one that is to be filled. Then open the valve underneath the mixing pan and fill up the kier.

To dissolve the caustic, break into small pieces if it is used in the rock, and put into the pan. Cover with water and turn on the steam gradually in the dissolving tank, stirring up the lumps with a wooden paddle until thoroughly dissolved. This will take only a few minutes. When the mixture is all dissolved, place the funnel of the inlet pipe near the kier and open the valve under the dissolving tank. It will not take over fifteen minutes to charge the kier in this way. Open the air valve on top of the kier to relieve the air pressure which results from the introduction of the liquor into the kier. This facilitates the filling of the kier.

If a pump is used for filling the kier, the best plan is to call in some of the manufacturers making these patent attachments and have them connect it to the dissolving tub and the kier. I have had less trouble with the gravity method. If pumps are used difficulties will very often arise with the belts or motors, while with the gravity method there is nothing to get out of order unless it happens that the pipes get blocked up. This can be prevented by putting a strainer over the pipe in the mixing tank. The only criticism of the gravity method is that it is out of date and old fashioned.

The best way of conveying the goods from the kier to the bleach tank, assuming they are piece goods and put into the kier

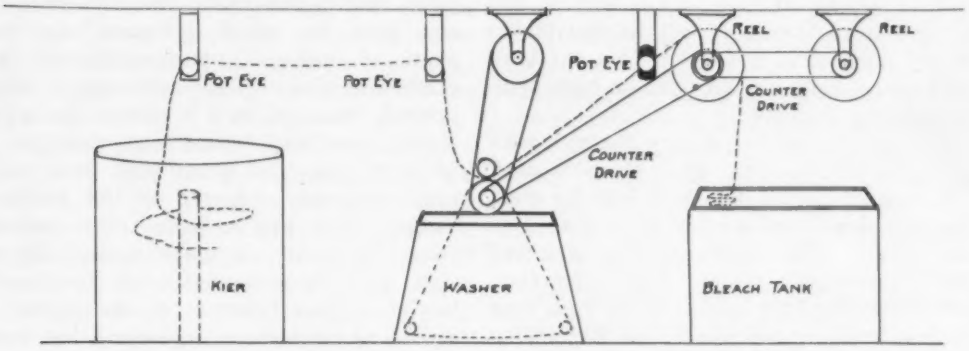


FIG. 2

in rope form, is to erect pot eyes, Fig. 2, over the kier and washer as well as over the tanks, to guide the goods onto the reels or pulleys. Thread the goods through the pot eyes and washer, thus drawing the goods out of the kier, the reels being driven by a counter belt from the reel to the machine. It is better to drive the reels this way than separately as the reels and machine stop at the same time. If the reels are driven separately they will require a shipper to stop them. If left running when the machine is stopped they very soon burn a hole in the goods. I presume the bleach tanks referred to in the question have an 8-inch wall around them for the purpose of ageing the goods until they are white. These tanks should have a well underneath for the bleaching agent to drain through and should be pumped back into the chemic tank to be used again along with new liquor. The idea of the goods passing through the washer is to squeeze the surplus water out of them as well as to give them a wash, so that the liquor will not reduce the strength of the bleaching liquor and prevent it from doing its work in the ageing vat. Alpha.

To introduce caustic soda into a kier arrange the apparatus, shown at Fig. 1, below the main steam pipe valve. A and B show the main steam line on kier. C, D and E are about two feet in length and enter into F, which is a closed 2 or 3 gallon tank built to stand a good pressure. This tank has the steam branch, 9 and H, entering into it, and also I and J, which is an open funnel in which to pour the solution. To introduce the solution into the kier, shut the valve in C, D and H, and open the valve in I and J.

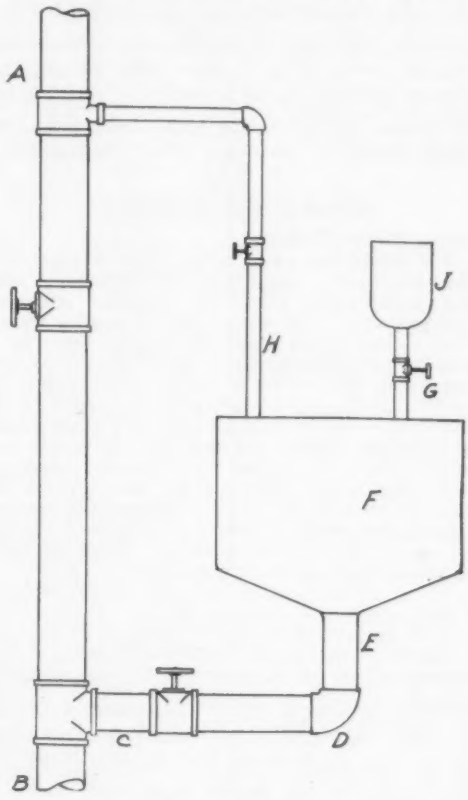


FIG 1A

Pour the solution in I and J until full and then shut the valve in I and J. Open valves in C and D and H and the solution will be forced into the steam line, A and B, and from thence it will be distributed evenly throughout the kier. This has been used successfully on kiers and on high pressure dyeing machines.

For the preparation of very strong lyes an iron tank which can be tightly closed is used. The mass of caustic is hoisted into the tank, the tank closed, and a jet of steam played on the caustic. The caustic is thus dissolved with a minimum of water. I have, however, always dissolved the caustic in an open tank by first breaking the fused mass and adding a little water and agitating with a steam pipe.

Piece goods are run through two small rolls above the manhole, through porcelain guides to another set of rolls just above the bleach tub. Care must be taken to have both sets of rolls just above the bleach tub. Care must be taken to have both sets of rolls run at the same speed. The rolls above the bleach tub may have a swinging motion attached to permit of the cloth being laid out more evenly. Seminold.

WEIGHTING SILK HOSIERY

Editor Textile World Record:

We would like some information in regard to finishing what is known as fifty-cent, pure silk, half hose, manufactured on seamless machines and generally made from a ten to twelve strand No. 1 Japan silk. We understand there is a method of weighting these goods after they are dyed and should like to know what method is used. We have been informed that sulphate of zinc is sometimes used, as well as a good grade of carpenter's glue. We find that our goods are inclined to be fuzzy and would like to overcome this defect without injuring the fabric, if that is possible. We are enclosing a sample of half hose, showing the goods as they are made in the gum. Of course, after these goods are boiled off they present a different appearance.

Michigan (2238).

The weighting of silk hose after dyeing is a matter of very considerable difficulty, if the intention is to impart permanent weight without impairing either the shade as dyed or the strength and wearing qualities. Weighting trials made on standard shades dyed with the classes of colors usual for silk dyeing and which resist the general domestic laundering completely, fail to give a degree of permanent weighting that is at all satisfactory.

Zinc sulphate is made use of to impart false weight, but other chemical salts are also used, for instance, Epsom salts (sulphate of magnesia), barium chloride and calcium chloride. This latter salt is objectionable inasmuch as it is excessively hygroscopic, absorbing considerable quantities of moisture from the atmosphere, and, where used, generally imparts to the goods a "soggy" feel that is commercially undesirable. The better substance to use is Epsom salts which is not hygroscopic and besides has no serious influence on the goods. It should be remembered, however, that where the boil-off in the silk is, say 25 per cent., i. e., 100 pounds of the silk losing 25 pounds of gum, it is not to be expected that any "weighting" treatment after dyeing will enable the manufacturer to restore the 25 pounds' loss by the aid of dissolved chemicals.

The following weighting bath has been used, and by it the weight of the treated goods has been increased up to 14 per cent.

Prepare a bath with the following ingredients:

300 gals. water, in which is dissolved
225 lbs. Epsom salts, and
30 lbs. canary dextrine, then add
½ gal. glycerine, and mix thoroughly.

The silk hose are saturated with this solution by working them in a rotary machine, allowed to drain, hydro-extracted, boarded and dried.

Certain bright shades on this class of hose that have been very popular this season, such as bright greens, reds, blues, etc., should be worked in the solution only after preliminary trials made with a single stocking before the addition of the glycerine, as this substance is very liable to strip wholly or partially the "topping dyes" used to give the particular degree of brightness, especially when the basic dyes have been used for that purpose, as is most commonly done.

No method of weighting that is adopted to give false weight can be regarded in a favorable light, especially from the viewpoint of the customer, unless the goods sold are

branded as having been artificially augmented in weight by substances that are not real silk or that partake of the properties of silk. It is a peculiar commercial custom that permits goods to be sold that carry mineral substances that will be removed almost completely during immersion in the wash tub.

Regarding the use of the "best grade of carpenter's glue" as a weighting agent; the writer is of opinion that the amount required to restore the original loss in the silk due to the boil-off would be so great that the hose would feel like wire rather than silk.

Refined gelatine, the transparent kind, sold in thin sheets everywhere, is much used as a dressing for silk to overcome fuzziness, and is generally applied in a very thin solution, but it is not used for weighting as ordinarily understood. L. J. M.

HARDENING OF PASTE

Editor Textile World Record:

We use a paste made from sago flour, but it gelatinizes on cooling and becomes too hard to spread uniformly. Can you suggest some formula that will prevent this so that it will remain soft and smooth when cold? Basel (2243).

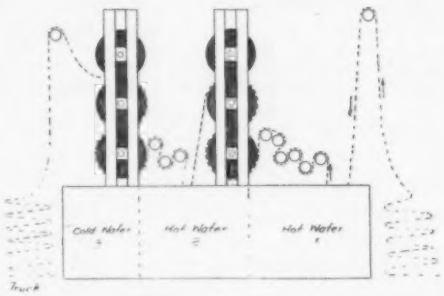
Sago used as a paste has the same disadvantage as farina when used separately. They become hard and brittle and will not keep long without getting sour and losing their adhesive properties. I am unable to give a definite answer to the question, not knowing what use the paste is put to, if intended to dry quickly by heat, or allowed to dry by gradually smoothing out. If by heat, I would advise that the quantity of sago and water be divided in two equal parts. Mix one-half and raise almost to boiling point. Have the other half ready to pour into the half which has been partially cooked and stir well while mixing the two halves together. This will make the mixture of the desired consistency, and it will be easy to spread. The heat for drying will finish the cooking and give greater adhesive properties. If on the other hand, the goods are to dry gradually or the paste is to stay thin and moist, prepare the paste as directed above and add 1/4 pound of borax and 1/2 pound tallow to each gallon of paste. One pint of soluble oil may be substituted for the tallow. This will keep the paste soft and moist and make it easy to spread uniformly. This method keeps the paste soft. As the ingredients are only partly cooked it will keep longer and no gelatine will form for some hours, or until it is heated. The mixture must be well stirred frequently while using. I think "Basel" will find this method will do away with some of his trouble.

Montrose.

REGULATING THE WEIGHT OF FABRICS

Editor Textile World Record:

Some time ago I asked you for directions for regulating the weight of fabrics in finishing, and in the September, 1912, issue "Elmo" wrote an article on that subject. While the article was very good it did not give the information I was seeking. He treated on goods which were run in the fulling mills, but I was referring to clear finished serges and similar goods. Take for example two pieces of the same fabric with the same weight from the loom, why should one piece lose anywhere from 1/2 to one ounce more than the other in finishing? Again a certain fabric is finishing all right for weight, when all at once without any apparent reason it begins to come one ounce heavy or one ounce light, as the case may be. The finisher



claims he is treating the goods just the same as before, nevertheless there is a great discrepancy in the weight. Where has it gone?

There are other questions regarding finishing I would like to ask. First as regards singeing. Some serge mills will not have a singeing machine in the mill, while other manufacturers making similar lines of fabrics will add more flames to the singer, claiming they save on the shearing by so doing. There are the two extremes of practice. Which one is nearest to the right track? Would not additional flames on the singer be apt to make the fabric harsh?

My second question is in regard to crabbing serges. The general method is to run the cloth through the hot water and on a roll, letting it set

until cool. I recently saw a crab which does the work much quicker and with less attention and labor. I enclose a sketch of the machine. The cloth enters a tank of hot water, then passes over a series of small rolls to get tension, and over a corrugated brass stretch roll, down round the heavy iron roll, up and between the bottom and middle rolls, round the middle roll, between the middle and top roll down into hot water again, up and through the next set of rollers in the same manner as through the first set, then through cold water, over a swing onto a truck, and the operation of crabbing is finished. This is, of course, a great time and labor saver, but can it produce the same effect on the fabric as the other and more general method of crabbing? Do not the tension and the excessive weight of the six big rolls, also the plunging of the fabric direct from hot water to cold prove too drastic? Also does it not seem more natural that the cloth put on a roll and cooled off slowly will be firmer set and feel more springy and clothy to the handle when finished?

The third question relates to hydro-extractors. I have heard of a mill which has thrown out its rotary extractors and put in a machine which sucks out the water. The cloth goes between heavy rolls, is stretched out flat so that there can be no wrinkles, then passes over a brass beam which is perforated to allow the air to be sucked through. There is a pump attached to the machine, and of course the suction is enormous and the water is extracted quickly, continuously and thoroughly. This looks to be a good thing, but I have heard it said that it had been previously tried, but it was found that a fabric thus treated looked raw and boney on the face when finished as the suction it received pulled the fibers through onto the back and left the face very open and hungry looking. Has this machine been tested and if so with what success? Is there any reason to think it is not practical? Rotuma (2127).

Regarding the regulating of the weight of clear finished serges in finishing, there is little opportunity to do much in this line upon goods that are finished without fulling.

The matter of weight needs to be attended to in the construction of the cloth, due allowance being made for the loss that takes place in the finishing.

"Rotuma" claims a loss of one-half to one ounce more in one piece than in another, where the two were of the same weight from the loom. He does not say how heavy the goods are, so we are not able to determine the percentage of loss. If the goods are to weigh 9 or 10 ounces finished, the variation of one ounce would be large, while if they are 16 or 18 ounce goods, it would not be excessive.

If the goods are properly cleansed, there is little chance for such a variation to be laid to the finisher, as they go through no process of either shrinkage or gain in length that could produce such a result. Any deficiency in scouring the goods would result in added weight to the dirty cloth, in proportion to the amount of foreign matter left in it. Any variation would result in varied weights, but hardly as great as seems to be in the case in question. If the goods were dirty, it would be likely to cause other trouble equally serious and less difficult to locate.

Since there is no fulling in length nor stretching sufficient to affect the weight materially, we must conclude that the loss is due to an excess of foreign matter in some of the pieces. Where two pieces of the same weight from the loom vary an ounce when finished, the lighter one must have contained an ounce more of grease and dirt at the start.

If "Rotuma" makes his own yarn, he should be able to regulate this in preparing his stock, if it is all wool and properly scoured. If shoddy is used in the mixture, it may be difficult to determine how much foreign matter it contains, and it may be well to remember that the shoddy manufacturer makes a special profit on all the oil he loads into his stock. If the yarns are bought from different parties, there is more than likely to be considerable variations in the shrinkage, as different men have different ideas and methods in preparing and applying their oils, to say nothing of the condition of the stock at the start.

These are things the finisher cannot foresee nor in any way correct. It looks as though some pieces must necessarily contain a larger amount of matter to be discharged in the cleansing of the goods. If this is the case, the difficulty will be hard to correct. By getting a record of the goods that lose in weight, and those that do not, and comparing them with the lots of yarn used in each, the result might lead to some enlightenment. Another thing that would be sure to cause the trouble is the padding of the weights in the weave room. I knew of a case where the weaver marked up the

weights of pieces that were too light, in order to cover up his own shortcomings, and of course this led directly to the difficulty in question. The man on the spot should be able to ferret out the cause, but the above hints may be helpful in his endeavor.

Excessive singeing causes a harsh and undesirable "feel" to the cloth. The writer was at one time connected with one of the leading plants in this country, and while they had an equipment for singeing, they did not use it for their serges, but for jersey cloths only. The shear will clear the face of the cloth sufficiently and yet leave a soft handle that the singed fabric does not possess. Excessive singeing tends to injure the fibers in the twist, which should be avoided.

The new method of crabbing as described by "Rotuma" may be all right, but I have doubts about its merits as compared with the slower and more common method of rolling and cooling off on the rolls. The latter method is supposed to set the weave or the threads of the cloth, which I judge could not result from its passing over rolls as described, because of the bending of the cloth, so to speak, in opposite ways as it goes from one roll to another.

Another feature of the machine that does not strike me favorably, is the sudden passing of the cloth from hot to cold water with no protection from shrinking that the rolling of the old method insures. Aside from the usual methods of fulling, there is nothing that tends to felting more than a sudden change from a hot to a cold bath. As a time and labor saver the machine commends itself, and so may be classed with numerous other departures from the slower, but better methods of the past. The suction method of extracting looks like a good idea, though it is new to me. If it draws the fibers through to the back, why not turn the piece, and let it draw to the face?

The avoidance of wrinkles, caused by the use of the ordinary extractor, is a result much to be desired, and I do not see why this idea is not an excellent one. Elmo.

First as to weights: "Rotuma" speaks of two pieces of the same fabric with the same weight from the loom. One loses anywhere from 1/2 to 1 ounce per yard more than the other and asks where it has gone. I don't suppose there is a finisher of any experience who has not run against just such trouble at times. I have and by looking into the matter have found as a rule that one piece has stretched more than the other in length, thereby getting more yards to the piece and less weight per yard. The question may be asked: Where are they stretched? My reply is: On any machine which the goods pass through where tention may or may not be applied. When running two pieces of serge through the rotary press the press hand often finds that the listing is slack, causing small press wrinkles on the sides of the first piece. To remedy the trouble he tightens the thumb screw on the tension roll, thereby tightening the cloth, making it smooth and avoiding wrinkles, but also stretching the piece in length and making it lighter per yard. The finisher knows nothing of this and supposes both pieces have been given the some treatment unless he happens along and finds out for himself what is being done.

Again two pieces are of the same fabric of the same weight and length from loom, and both finish the same length, still one weighs one ounce more per yard than the other. Perhaps conditions at the dryer were not the same, one piece being thoroughly dry and the other damp. The damp piece, of course, would be the heavier. These are simple suggestions, but if you are a close observer you will find that such little things make the difference in the finished fabric. Who is to blame? Well if it were possible for the finisher to do all the work himself he might be to blame for the difference in weight, but unfortunately he has to depend on others. Conditions for the woolen or worsted overseer today are not what they were some years ago. There was a time when the help in the mills were English speaking. There was a time when if you told a man to do or not to do a certain thing you were reasonably sure that your orders would be carried out. But not so today. Tell them to do something they will say yes, and in a few minutes you will find them doing the very thing you didn't want done. When spoken

to about it the only answer you get is a shrug of the shoulders and "Me no understand."

I have worked in a mill making a high grade of serge also fancy worsteds in piece dyed and yarn dyed that didn't have a singeing machine in the mill. That mill was and is a successful mill, busy all the time and their goods looked and handled well. I have known mills and worked in some where the singeing machine was used and found that the more the goods were singed, the dryer and harsher they handled. They did not have that kind, mellow touch so much desired. I have known those who had the singeing craze so bad that they singed the goods before fulling, claiming that they saved in shearing. They saved in shearing all right and they cheapened the handle and looks of the goods, which felt dry and harsh and looked hundry. My experience indicates that, all other conditions being equal, the mill without the singeing machine would turn out the best feeling piece of goods. If the goods are slightly felted, a finisher can work wonders with the cylinders covered with emery, clearing out the twill causing it to come out clear and round and still retain a soft handle. Mannix.

DEFECT IN SELVAGE

Editor Textile World Record:

We are having all kinds of trouble with a mercerized 2/30s filling in our ribbon and we are unable to determine just what the cause is. We are at present using an extra good quality of yarn and it does not seem to work any better, causing unevenness in the selvage of the ribbon. We thought that possibly it might be something in our machinery, although we have gone over this very carefully and cannot see where there is any trouble. We are enclosing a sample of this ribbon. We would thank you if you could shed some light on this matter. Phoenix (2207).

The defect in the selvage of this ribbon is caused by a lack of tension on the filling. It is necessary to draw the filling tight in the shuttle. Owing to the fineness of the warp it is necessary to mount the threads at each side on independent bobbins and subject these side threads to an extra tension. The tight threads have a tendency to hold the filling in place. Gaul.

SPONTANEOUS COMBUSTION OF SILKS

Editor Textile World Record:

We have been informed that certain weighted silks, if stored at a moderate temperature, are liable to ignite from spontaneous combustion. Can you tell us what silks, if any, are subject to this hazard, and whether the insurance companies make any restrictions? Sioux (2137).

The risk to which "Sioux" refers is a remote one, and applies only to one kind of dye, and that is the heavily weighted Hayti black souples, loaded to about 50 ounces.

Silk may be dyed either "bright," or "souple". The silk, as spun by the worm, contains a soluble gum, sericin, amounting to 17 to 27 per cent. of the weight. There will be lots that run below and above these limits. The silk does not show its full brilliancy until this gum has been discharged by the "boiling-off," usually the first process in the dyeing. When the silk has been boiled-off as a preliminary to dyeing it is known as "bright" silk, and is soft and very lustrous.

When luster is not essential the silk can be dyed without discharging the gum, and its appearance is then dull, and it feels somewhat harsh to the touch. In this treatment there is a reduction in the amount of dyestuff used, and less mechanical stress is put upon the fiber, so that the silk is likely to be more durable. Silk dyed in this manner is known as "souple".

The meaning of 50 ounce black souple weighting is that a pound of silk, of 16 ounces, is raised by a series of chemical treatments to a weight of 50 ounces. Of this weight, if the silk boiled-off 20 per cent., 12.8 ounces would be silk, 3.2 ounces silk worm gum, and 37.2 ounces weighting, or, roughly speaking, 1/4 is silk fiber and 3/4 adulterant and gum. It is true that this weighting is exceptionally heavy, though at times lots as high as 60 ounces can be dyed in souple. In brights, which have been freed from their gums, 44 ounces is about the limit of weighting for blacks, as not only are different weighting materials used, which are more severe on the silk, but the silk in its boiled-off, and consequently opened up, state is more liable to injury from the great amount of manipulation necessary. It is

only black that can be loaded so heavily, the limits for colors being away below this.

There are three different kinds of black souple known in the trade, namely the Hayti souple, which is made with the black iron and chestnut extract; the Persian souple made with red iron and gambier; and the Divi souple, made with red iron and Divi Divi.

Among these, the only one subject to spontaneous combustion would be the very heavily weighted Hayti sample, in which it seems that a chemical reaction sometimes takes place after the silk is dyed. Such excessive weightings cause the silk to lose all luster and to become harsh and of a cotton-like appearance. Their use is practically restricted to fillings for such goods as heavy gros-grains in which the warp conceals the weft. Gros-grains have been out of use in any large way for about twenty years, and we never meet with this spontaneous combustion now.

Should fabrics come in requiring such heavily weighted black souples, it might be judicious, if the character of the weighting were unknown, to store bundles of such silk on shelves protected by tin, or other fire-resisting material, to guard against the remote chance of spontaneous combustion. The insurance companies make no restrictions on the subject. James Chittick.

CUT-MARKS FOR COTTON WARPS

Editor Textile World Record:

Please give us a formula for a good cut-mark to be used on sulphur black warps going through the slasher. We would like to get a good mark so that we can see it after the cloth is woven. We have had some difficulty in this direction and are now appealing to you for a suggestion.

Avon (2181).

Our English correspondent offers the following suggestion:

Has "Avon" tried marking the warps with a spirit solution, employing a dye of bright color, soluble in spirit, but not soluble in water? Wm. Edge & Sons, Ltd., Bolton, Lancashire, offer samples of dyes to meet the requirements.

Wax pencils or crayons have been found to be a most satisfactory means for marking warps, as they are generally not affected by the size and do not melt as one might suppose. But generally used wax is high melting paraffine, bodied with cerasine, and containing about 10 per cent. of rosin. When these ingredients are melted together, a lake color (dry color) is slowly stirred in. The mixture is worked for a while at the melting temperature, and afterwards poured into moulds. This method is better than painting the ends of the warps or pieces.

L. J. Matos.

PERCENTAGE OF WOOL IN KNIT GOODS

Editor Textile World Record:

Is there any method of figuring out the percentage of wool in a given amount of knit goods when the yarn combinations are known? What would be the percentage of wool in the two following combinations:

Combination No. 1

4 bobbins ..... 36s worsted
4 bobbins ..... 24s cotton
8 bobbins ..... 38s cotton

Combination No. 2

4 bobbins ..... 12s cotton
4 bobbins ..... 38s worsted
4 bobbins ..... 24s cotton

Dalton (2185).

The percentage of worsted is found by first calculating the weight of each thread for any given length delivered to the machine. For a length equal to 38 cotton hanks (of 840 cotton yards) the weight of each kind of yarn in Ex. 1 is calculated as follows:

4 (ends) × 38 (hanks) = 152 hanks 24s cotton
8 (ends) × 38 (hanks) = 304 hanks 38s cotton
4 (ends) × 38 (hanks) = 152 hanks 36s worsted
36s worsted = 54s cotton

The weight is then calculated as follows:

152 (hanks) ÷ 24 (hanks) = 6.3 lbs. cotton
304 (hanks) ÷ 38 (hanks) = 8 lbs. cotton

Total cotton 14.3 lbs.

152 (hanks) ÷ 54 (hanks) = 2.8 lbs. worsted

17.1 lbs.

2.8 (lbs.) ÷ 17.1 (lbs.) = 16½% worsted
14.3 (lbs.) ÷ 17.1 (lbs.) = 83½% cotton

100 %

Taking 57 hanks for Ex. 2 we have

4 (ends) × 57 (hanks) = 228 hanks for each kind of yarn
38s worsted = 57s cotton
228 (hanks) ÷ 12 (hanks) = 19 lbs. cotton
228 (hanks) ÷ 24 (hanks) = 9½ lbs. cotton

Total cotton 28½ lbs.

228 (hanks) ÷ 57 (hanks) = 4 lbs. worsted

Total weight 32½ lbs.

4 (lbs.) ÷ 32½ (lbs.) = 12.3% worsted
28½ (lbs.) ÷ 32½ (lbs.) = 87.7% cotton

100 %

EQUIPPING A HOSIERY MILL

Editor Textile World Record:

I wish to determine the cost, machines necessary and the capital required to equip and run a hosiery mill making light weight lisle half-hose and ladies' hose, running 220 needles, and turning out a production of 150 dozen per day. Kindly give me this information including the finishing plant and what yarns in your estimation are best adapted for this style of work.

Moulton (2224).

"Moulton" fails to state the quantity of ladies' hose and half hose he wants to turn out, but I should say that on half hose the machines will average about four dozen per day and on ladies' hose about three dozen. If it is desired to make equal quantities of each it will require 19 machines for half hose and 25 for ladies' hose, or in all forty-four knitters. Four rib machines will be required for half hose and the looping of 150 dozen about 6 loopers will be necessary as the average operator will not turn off more than 25 dozen per day of that class of goods. Also one welting machine for the tops of ladies' hose.

A floor plan is shown at Fig. 1.

The finishing plant will require one dryer which would best be 250 dozen capacity; one steam press, of a type according to the finish desired. Presuming "Moulton" does his own dyeing, it is supposed he will want the developed or sulphur process for blacks and direct for tans and colors. This will require two rotary washers and one extractor. One washer for blacks and one for tans and colors. The extractor could be used for both by being thoroughly washed on changing colors.

The following necessary power equipment will have to be considered: A 25 h. p. engine is sufficient; machinery shafting of

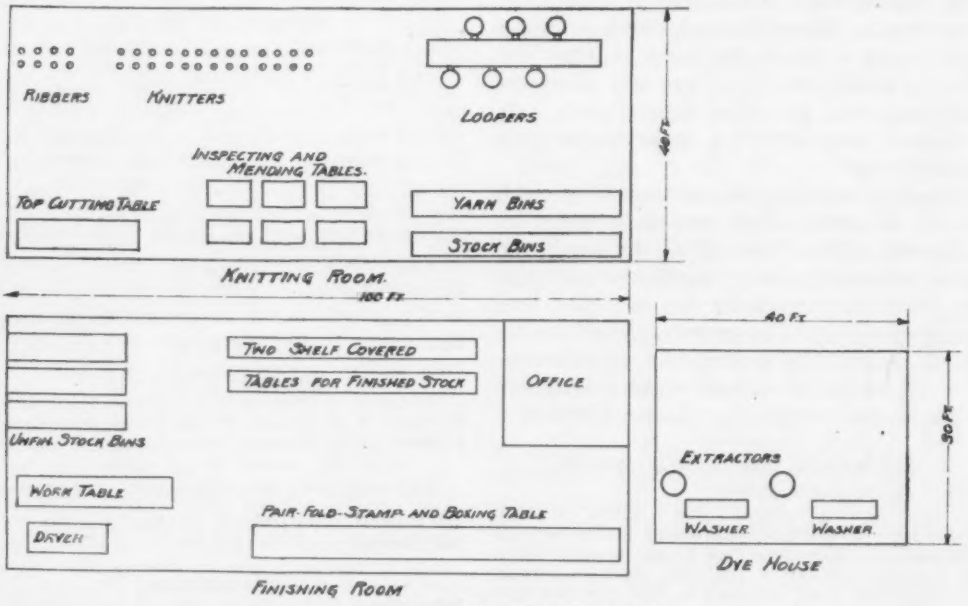


FIG. 1. A FLOOR PLAN OF A HOSIERY MILL

1 7/16 inches is heavy enough with counters of 1 15/16 inches.

The cost of the various machines can be obtained from the various builders who are always willing to submit particulars.

In the finishing department it is necessary to have drying forms for half hose, sizes from 9 1/2 to 11 1/2, running up by half sizes, and ladies' forms from size 8 1/2 to 10 1/2. It would be well to have five dozen of each size. In doing your own dyeing a singeing machine will be necessary.

Outside of the power plant, I should say that $12,000 would cover machines and all necessary expenses.

The yarns best suited for this class of goods would be sizes 2/50s to 2/60s according to weight desired, and either combed peeler, combed Egyptian or Sea Island yarn could be used. I think the Sea Island yarn would be the best. Cipango.

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YARN BY THE GROSS

Editor Textile World Record:

I find certain worsted yarns quoted "per gross" instead of "per pound" in Bradford price lists. Gross of what? Would welcome an explanation. Duodecimal (2210).

A gross of worsted hanks (144 × 560 yards) is 80,640 yards. The custom is of old standing descending from the time when filling yarn was bought in the hank by the weaver and was wound by himself or his wife. The yarn sold by the gross is now ordinarily delivered by the spinner on tubes and they are such as are used for fillings in cotton warp dress goods and linings. Single 60s Botany for cashmeres or linings and single 30s luster and alpaca are the yarns chiefly sold in this manner. The practice seems to be confined to one section of the Bradford trade. Its justification is that it is the peculiar system the parties have always been used to. J. Strand.

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FUEL FOR A STEAM PLANT

Editor Textile World Record:

Suppose a condition where 37 k. w. are needed at once to light a small but rapidly growing town. How much more fuel would be needed for a 100 k. w. steam plant than for a 37 k. w. plant which would be sufficient for present needs? Would there be any other increased cost in the case of the larger plant than that included in insurance, interest and depreciation, there being no increased labor cost? Apex (2125).

If "Apex" is reasonably certain that he will need 100 k. w. within the next three to five years, we should by all means advise him to put the larger set in now, as the cost of its operation for a 37 k. w. output would not be appreciably more than operating a small outfit to give 37 k. w. at full load. The additional cost after the first installation would only be the interest, depreciation and insurance, as the labor and fuel cost would be practically the same for the larger set as for the smaller for the same amount of power generated.

STRENGTH OF CAUSTIC SOLUTIONS

Editor Textile World Record:

I recently found when purchasing caustic soda lye 77° Tw. from a reliable chemical company that my standard Twaddle hydrometer registered about 60° Tw., and the solution was homogeneous throughout. What is the method for determining the density of solutions in Twaddle degrees and why this discrepancy? Sebastopol (2226).

"Sebastopol" states, that in purchasing caustic soda lye of 77° Tw., he finds upon testing it with his Twaddell glass that it shows a strength of only 60°. Without having a sample of the solution to test and verify, we cannot state with absolute certainty the true cause of this discrepancy. A caustic soda solution at ordinary temperature, standing at 77° Tw. should contain 27.2 per cent. of oxide of sodium, which is equal to 34.98 per cent. of sodium hydroxide. It is a very unsafe practice for buyers of caustic soda lye to depend upon the hydrometer glass only in testing these solutions. All deliveries of caustic soda should be made upon a volumetric determination of the exact amount of oxide of sodium contained in it.

If the solution purchased by this consumer stood at 77° in the laboratory of the seller and stood at 60° in that of the purchaser, the temperature being the same in both places, it would almost be conclusive evidence that the hydrometers used were not correct.

Caustic soda solutions are tested volumetrically by means of a normal solution of hydrochloric acid, 1 cubic centimeter of such normal acid corresponding exactly to .04 grams of caustic soda, or to .031 grams of oxide of sodium.

All purchases and sales of caustic soda, soda ash, and sal soda are made in terms of sodium oxide, represented by the chemical formula, Na_2O. As an example 100 parts of pure caustic soda (NaOH) contains 75 parts of sodium oxide (Na_2O) and for soda ash (or carbonate of soda) 100 parts contain 58.5 parts of oxide of sodium. It is best not to rely on any of the Twaddel glasses in determining the strength of such solutions, but to have the sales made subject to a chemist's assay, which is the only means of protecting both the buyer and seller. Berwick.

Knitting Department

THE KNIT GOODS SITUATION

Very little duplicate business on heavy weights has come forward during the past few weeks. In most cases, manufacturers are not in shape to accept any. It is probable that jobbers are fairly well informed as to conditions and, instead of trying to place additional orders, they are devoting their efforts to getting the goods delivered that were bought during the early months of the year.

The scarcest lines of underwear today are men's flat fleeced and ribbed shirts and drawers at 50 cents and under. While it is believed that jobbers have a good volume of this class of goods on order, the demand seems to be extremely good at this time and jobbers are not getting supplied from the manufacturers fast enough to take care of the business.

It is understood that one line of low priced fleeced goods sold early at $3.25 is from ten to twelve weeks behind on delivery and the probabilities are that the season will end with some of the orders still unfilled. Buyers have expressed the opinion that some of the manufacturers are endeavoring to have just such an ending, as the goods show a loss at the low price they were sold at.

One line of men's ribbed shirts and drawers that sold early at $3.62 1/2 can now be bought at $3.75, but for late delivery, not earlier than December first. Most lines of this class of goods cannot be had for the balance of the season.

Ladies' ribbed goods in general have been delivered promptly, and there are in the hands of jobbers, rather heavy stocks of both cotton and worsted lines. Duplicate orders may be had on short notice and practically early prices.

There is a heavy demand for ladies' ribbed vests and combination suits in heavy weight fabrics made with short sleeves, some with five-inch, but mostly with twelve-inch or elbow length.

The demand for peeler lines in cotton goods and for silver grey in worsteds is growing gradually less. White goods are increasing in popularity.

A few additional orders on spring lines are being placed each week, but these are not large and in every instance, higher prices are being asked. Advances as high as 12 1/2 cents have been obtained on low grade balbriggans to retail at 25 cents.

On straight ribbed vests sold in July at 72 1/2 cents, an advance of 2 1/2 cents are being obtained. A number of lines sold early at 95 cents have been advanced to $1.00.

The effect of shorter working hours has become apparent in some degree in advanced prices being obtained. It was felt in some quarters that the effect of shorter hours could be largely nullified by speeding up the machinery, but it has been found that the maximum had about been reached, and the ten per cent. reduction in hours has had the effect of lessening the production in practically the same percentage.

At this writing, it cannot be learned that any openings of 1914 lines of underwear have been made. Several interested parties predict late opening this year on account of higher prices which must be asked. A number of lines of samples have been made up, but the makers have been unable to figure attractive prices based on the present yarn quotations, and are now waiting for something to turn up to alter conditions.

The only prices that we have heard mentioned are from $3.75 to $3.87 1/2 for men's 11-pound ribbed goods and $3.75 for men's 12-pound fleeces. These could not be traced to any offering, but were merely a manufacturer's idea of the prices that ought to rule to be on a par with yarn prices.

There is no doubt but that prices on the

majority of wool lines for 1914 will remain the same as this and previous years.

Owing to the fact that the courts have upheld the Julius Kayser Co. in their claim to the exclusive right to use the words, "Italian Silk" as applied to underwear, M. S. Siegel & Co. have notified the trade that they will no longer operate under the name of the Italian Silk Underwear Company.

HOSIERY

Low priced cotton hose of all kinds are in an exceedingly well sold up condition and it is practically impossible now to place any orders for ten-cent or fifteen-cent grades for spring delivery. Some few lines might be had for very late delivery, but the prices of these have been so advanced that they are now practically the same.

Lines of ladies' cotton hose a $1.70 to $1.90 have been somewhat slow due to the competition on low grade fiber boots, but the fibers are now so well sold up, the probabilities are that 25-cent cottons will begin to be absorbed soon.

There are some lines of fibers sold early at $1.82 1/2 that have now been advanced to $1.95 and some $1.90 lines that have been changed to $2.00. At these prices, jobbers are placing orders wherever satisfactory delivery dates can be promised.

Now that the tariff has been settled, results of the new rates are beginning to be evident. It was found that very few importers had any quantity of hosiery in bond to be released after the passage of the bill and there seems little likelihood of German hosiery being brought out to the extent that it was under the last low tariff. The one item most frequently mentioned in this connection is lisle half hose that can be landed at $1.25, competing with cotton and mercerized domestic lines that have been sold at $1.50 to $1.65.

It is said that the American made fiber half hose at $1.65 to $1.80 have been sold in Germany, so it is evident that Chemnitz manufacturers are not in a position to compete on this class of goods to any extent.

The Chemnitz Consul's report of the condition there shows that there is a heavy demand for hosiery machinery from that district for American factories. This would indicate that the American makers have confidence in the future, despite the low tariff.

A new finish in hosiery has been shown of late, consisting of the double heel running up to a point at the back of the ankle, instead of squarely across. This looks more attractive and the trade are asking for the new shape quite freely, although it has been out only a short time.

Another new feature in women's hosiery has been patented by the Safekeep Pocket Hosiery Co. of Philadelphia. This consists of a pocket sewed on the inside of the welt with a flap over the top of the stocking and fastened by a ball and socket clasp. These may be had in cotton, lisle and silk goods in a wide variety of qualities.

SWEATERS

A genuine scarcity of coat sweaters in the lower grades has been quite marked for some weeks and it is practically impossible to get any delivery of goods under $24.00 per dozen for the balance of the year. Lines at higher prices are in a well sold up condition, but not quite so scarce.

There has been a heavy increase in the call for maroon and cardinal coats during the past month, particularly in all lines of men's and boys' goods. As a result of this, some jobbers have on hand a fairly large stock of all other colors.

Coats with shawl collars continue to have the call for men, women and children and in some localities there has been a good demand for the coat made with detachable collar which when removed, leaves simply a V neck garment which is better adapted to be worn under another coat, than one with a collar attached.

A new market has been opened recently to manufacturers of low grade sweater coats and possibly some of the shortage that now exists in this market may be attributed to the fact that we are exporting these goods. Consul Williams reports that the poorer classes of Chinese are buying the low grade American coat sweaters very freely.

One of the scarce items today in the knit

goods department is the brushed knit sets for infants' wear. These consist of sweater coat, drawer leggings, cap and mittens and are in big demand in red, grey, white and tan. They are being made at from $24.00 per dozen and upward, but the best selling lines are those at $36.00 to $42.00 per dozen. For some time it has been impossible to get deliveries sufficiently large to supply the demand.

Some manufacturers are putting up these sets in cardigan stitch and also in links and links knit, but the popular demand seems to be for those made of brushed fabric in imitation of Angora.

NEW STYLES IN BRAIDS

BY MONTCALM

The past season in braid trimmings has shown a number of new styles made up in various color combinations of Bulgarian or Balkan, for which the demand was beyond all expectations, considering that braids have not been in vogue during the past few years. The coming season promises no let-up in these color styles and in fact, to these have been added still more complicated mixtures known as Roman colors, which are shown in the advance fashions from abroad.

Fig. 1 shows a braid made up in Roman colors on a 24 line 2 thread lace braider, having 40 spools, 5 ends black and 8 spools 25 ends colors (2 tan, 2 green, 2 blue, 2 red) of artificial silk. To give the braid the required firmness 2 warp spools are put in at the third post from the end on each side of a flat gimp, made of a cotton braided cord and artificial silk. A mercerized cotton or horsehair warp is put in each edge to insure a straight selvage. To bring out the design it is necessary to set the colored spools on the proper carriers as set forth in the pattern on the jacquard, by means of which the spool carriers are controlled through switches. The design shown at Fig. 2 represents the pattern of the braid from which the jacquard cards are made.

Fig. 3, another pattern similarly colored, made on the same machine and having the same number of spools and ends except that the 2 warp spools of flat gimp are omitted. The design here illustrated shows that only one color, tan, crosses over from one side of the machine to the other. The remaining colors are kept on each side, giving it the desired oblong effect. To this pattern is sewed a small fancy loop braid, the product of a flat knitter, and as such it becomes a very desirable trimming for ladies' hats. Fig. 4 shows the pattern.

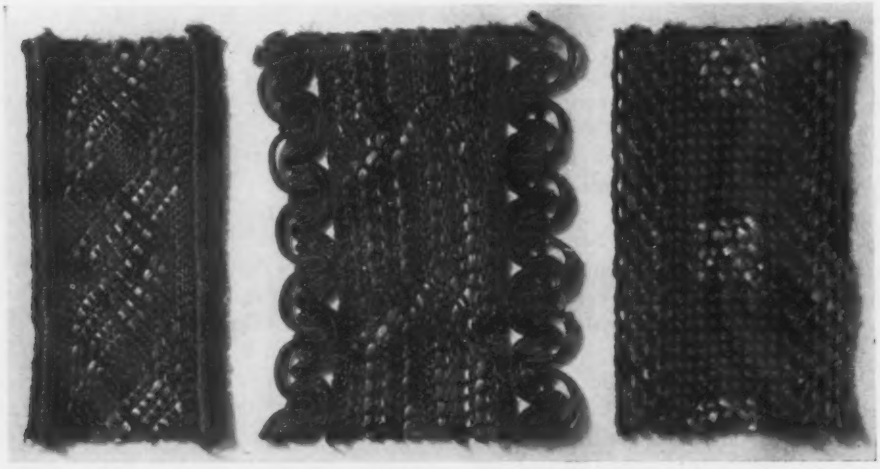


FIG. 1 FIG. 3 FIG. 5

NEW STYLES IN BRAIDS

Fig. 5 is a braid in Roman colors made on a 20 line Radium braider. This is one of the latest designs on these machines, bringing out the Roman colored squares in the

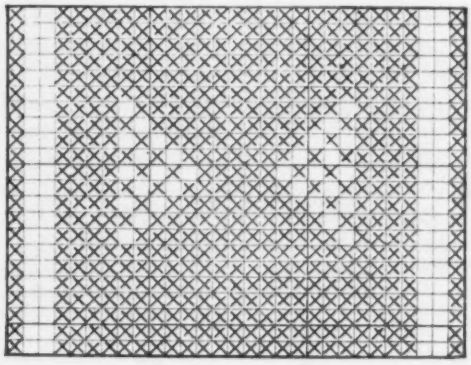


FIG. 2

center and having the edges open work or lace effect. In making this braid 40 spools, 7 ends black and 40 spools 7 ends colors (10 tan, 10 green, 10 blue, 10 red) of artificial silk are used. These colors are set one after each black, that is, black, tan, black, green, black, blue, black, red, repeating ten times. Twenty warp spools of a 2/20s mercerized cotton are used as filling, giving the braid a solid body. To give it the lace effect 5 warp spools of 6 ends artificial silk black are used on each side, in each alternate post and having every second carrier run over them, keeping the other spools on the inside runway. The accompanying design, Fig. 6, shows that the black is always on the outside runway except where the colored squares

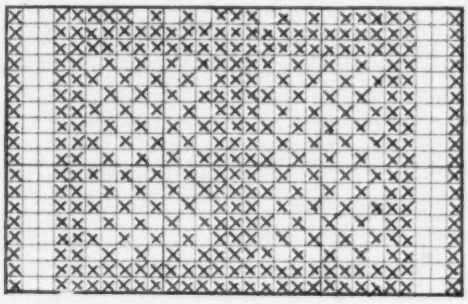


FIG. 4

are brought out. This braid makes a neat trimming for coats, but can be applied to almost any form of ornamentation.

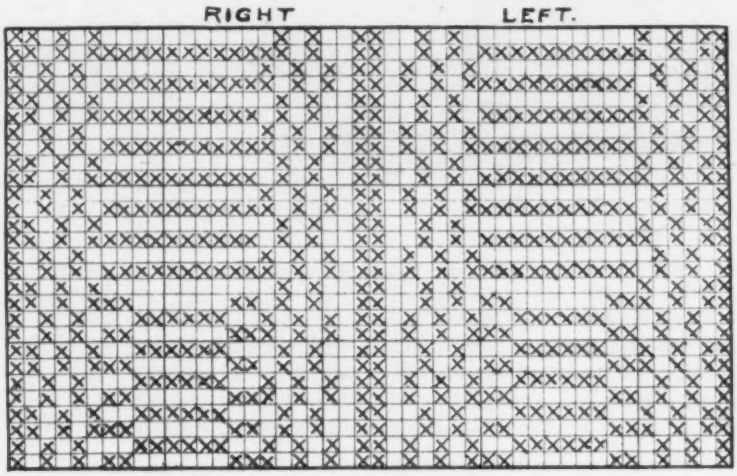


FIG. 6

That Florence, at an early date, obtained a foremost position among the manufacturers of Northern Italy is proved by documents, which also attest the singular fact that in "A. D. 1259 the city of Florence had agents in England to purchase and forward the wools of that island to be manufactured in Italy; that the coarse, ill-grained, wrought fabrics from abroad were likewise imported

A NEW DYEING MACHINE FOR HOSIERY

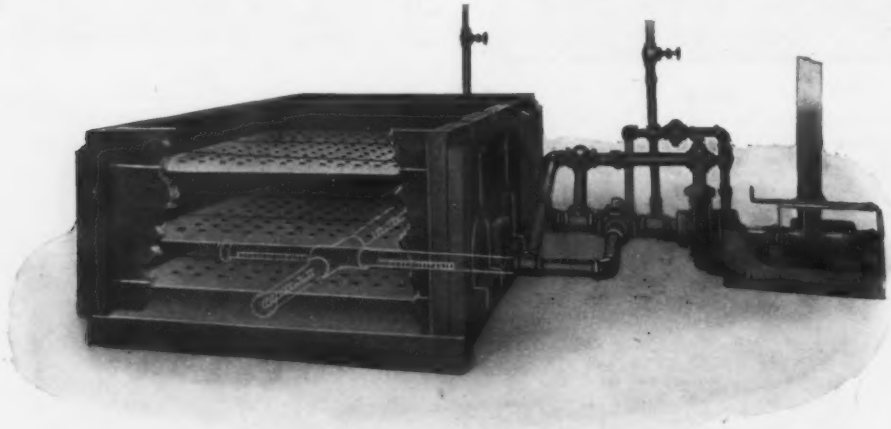
A machine combining simplicity with a wide range of utility in the bleaching and dyeing of hosiery has recently been placed on the market by the Uniform Dyeing Machine Co., Groveville, N. J. It consists of a rectangular vat, divided into two compartments; one of equal length and breadth, in which the stock is treated; the other, having a width of twelve inches only, into and from which the liquor flows during the circulation. An ingenious but simple device consisting of a four-way pipe releases and distributes the liquor over the bottom of the machine with such uniformity that even impregnation of the stock seems assured. Removable shelves, having graduated perforations, divide the machine horizontally into two stock receiving compartments. The circulating pump is driven at 450 revolutions per minute, resulting in very slight pressure. The steam pipe located in the narrow compartment is removed from the stock, insuring freedom from injury from excess boiling.

The method of dividing the stock into two masses eliminates the necessity for pressure and expedites penetration. The intervening space enables the liquor to be redistributed before entering the material above or below. Very little care is necessary in loading the machine, owing to the method of distributing and redistributing the liquor and the absence of high pressure which is responsible for channeling. The successful treatment of all grades of hosiery is also attributed to the method of dividing the material. This division makes possible the treatment of greatly reduced batches.

The method of washing is highly efficient. Clear water from the inlet is delivered by the pump at the bottom of the machine and moves upward through the separated mass, carrying with it all suspended chemicals to the top, where it flows into the drain. Throughout the rinsing the stock is subjected to a flow of clear water.

The builders claim that wrinkles, broken or drawn threads, twisted and knotted stock and roughening are avoided with this machine, as the position of the hosiery when finished is the same as when loaded, there being no opportunity for shifting. Silk hosiery is placed in the machine in the degummed state. The boiling out, dyeing, filling and finishing are accomplished without rehandling. Labor is saved by the use of common burlap in separating the various lots comprising the batch, avoiding the tedious work of assorting where lots become mixed. So simple is the loading and so little is required of the attendant that one man can operate two machines with a daily output of 3,000 pounds.

The method of carrying to the liquor storage tank the first wash water after cir-



A DYEING MACHINE FOR HOSIERY

culating it for a few minutes, prevents loss of dyestuff. The machine can be entirely enclosed during the dyeing and as the stock is not exposed during the entire treatment, steam consumption is greatly reduced.

The machines are made in any size to suit requirements. Three to four batches of sulphur black, two batches of developed black or two to three batches of formaldehyde black can be dyed and finished in ten hours in one machine.

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MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

LACK OF DISCIPLINE IN THE MILL

BY DENBIGH

Some years ago I was asked by a firm of knitting machine builders to take a position as overseer of knitting in the South with a firm that had considerable trouble keeping men in their employ. As I had the reputation of being able to handle just such positions, the machine builders were anxious I should go. After considering the matter carefully I concluded to try my hand at the position. Landing in the town on Monday morning I reported at the mill at once. I found the firm and office force waiting for me and very anxious to get me to work as they needed the goods for orders. They had been without a man for over a month, having engaged five different men in that time who had failed to come, and they were nearly frantic as they were so far behind on their orders, and the manager wanted to get away for a month's vacation.

After securing a boarding place I reported back to the mill and was taken into the knitting room and introduced to the help, among them the forelady. She appeared to be anxious for me to start work. Taking me around among the knitting machines of which there were about forty-five, she showed me the work and explained to me what the trouble was with the machines. I did not find one machine in good running order. I started in slowly to overhaul the machines and put them in running order, keeping my eye open to see what was going on around me. It did not take me long to see that about all that was going on was talking and singing, and it was not long before a big Frenchman who was working in the room as a fixer came to me and told me I would have to watch my help and keep them at work as they were playing about all the time. I told him not to worry about my work, but to attend to his own as I thought there would be no trouble that I could not overcome. He replied that he had never had any trouble with anyone yet, but that all the men that were there before me were down on him and he had never done anything to make them so. "Well," I replied, "I don't care what you and the men before me did. I will mind my own business and you do the same and we will get along all right." At the same time I thought that it would be a good plan to watch that man and it did not take me long to find out that he was looking for every little thing that he could carry to the office to make trouble, going over the head of the superintendent and manager direct to the president of the mill who was a man about 70 years old and who had been in the knitting business forty years or more. I thought the man must be along in his second childhood to listen to such reports from a man of this character.

There was no system in the mill and the help were practically running things to suit themselves. There was about a third more help than was needed. The working hours were supposed to be from 7.30 a. m. until 5 p. m., but the forelady was generally from fifteen minutes to half an hour late and the help would not start work until she came. I spoke to them on several mornings and from the remarks that were passed one would think I was insulting them, but at night they were all without exception ready to go home at 5 o'clock.

There were a number of young girls under 18 years of age who were half an

hour late every day, sitting around doing practically nothing but fool all day. After speaking to them they would go to the forelady and have a talk with her, then return and do just what I had told them not to do. Looking the situation in the face I came to the conclusion that I could not get along this way, so I went to the manager and explained the condition of things and told him I must have full charge of the help or I could not make a success of the work. He agreed with me and we went to the forelady. He informed her that I was in full charge of the help and responsible for the work that was taken from the machines and that she must let the help alone.

A day or two later the manager left on his vacation and the president's nephew was taken into the factory to learn the business. After the manager left the new salesman came out into the factory to revolutionize the knitting business. Things went from bad to worse and if it was not confusion worse confounded, then I don't know what you would call it. He would sit in the knitting room all day from 7.30 in the morning until 5 at night, smoking cigars continuously and watching the help. He would call me or the forelady and tell us that this or that girl had not done any work in half an hour. The girls did not seem to care a snap whether he was watching them or not. It did not take me long to find out that the forelady was not working in harmony with me nor for the interest of the firm. It was very evident that it was the good will of the girls she wanted and she apparently did not care how she got it. I could not keep the machines running as they should be if the help were scattered around the room instead of at their machines. I talked to them until I was about worn out and it did no good.

Then the help began to stay out and upon inquiring as to the cause I found in every case the forelady had told them they could stay out. I remonstrated with her about it only to be told that she was in full charge of the help and could let them stay out or go home when she wanted to. In my investigation I found out that this was the main cause of the trouble with the other men who had been there before me and I found that she had the help fixed so that if she got through they would all go out. I learned that just prior to my going to this mill they had hired a middle aged women whose duty it was to watch the girls and follow them up and keep them working. She had the time of her life doing this and on the third day she had a strike on her hands with the result that the firm gave in to the girls and let this woman go. After about ten weeks of this I concluded I knew the reason why they could not keep a man and made up my mind that unless I was given full charge of the help in my department I could not stay. I thought this would mean the loss of the forelady. I went to the president and told him all I had to contend with. He made all sorts of promises but I knew from his face that he was trying to keep me along and feeling that he was not sincere I gave him my notice, and was a happy man on leaving this mill.

FINE KNITTING

BY GLENCAR

It is not many years since the ribbed frame with a 14-cut was made so it would run successfully. With the right kind of a cam arrangement and good combed yarn it is run today in many mills. A 14 cut cylinder, that is cut 14 needles to the inch, is really 28 needles to the inch as the count must include the dial needles. I have at the present time a full set of three frames on union suits. They gave plenty of trouble at first, but are in perfect running order today. The first one to come was a 20-inch, 14 cut, 36 gauge, 42 hook needles. We tried to run a cheap grade of yarn on the frame just as it came from the shop, but it would not work as the fabric showed up full of holes. I experimented with it a week before I gave it up and used a better yarn. This frame had what is known as a full dial which means that the cut side of the dial was about flush with the backs of the cylinder needles, leaving very little space for the stitches to go through. This full nose of the dial also meant that the dial needles must be drawn back a little farther to clear or coast off the

stitches. This was very bad as it put more strain on the yarn and caused holes.

With the better yarn I was able to ease up on the dial stitches. This stopped most of the holes, but tuck stitches showed on one side. The greatest difficulty in fine

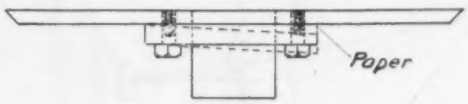


FIG. 1

work lies in the dial plate itself. The dial must be perfectly true even when the needles are out and the frame running. The dial might look true, but on extremely fine work this defect can be noticed by feeling the tension at different points of the fabric, above the take-up. This is because the dial is lower on one side, making a tighter stitch. The opposite side being higher makes a longer stitch. As a result of this the cloth is loose in the take-up on one side. The condition is apt to make holes on the tight

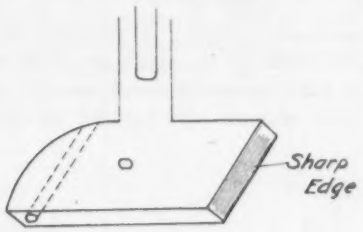


FIG. 2

side, while tuck stitches will show up on the loose side. This can be overcome by loosening both sets of spindle set screws, let down the dial as far as it will go and tap the spindle with a hammer. The set screw that holds the dial hub to the dial plate must be given a few turns; another tap on spindle will give space enough to insert a piece of thin paper, Fig. 1, about an inch wide above the tightest part of the fabric. This piece of paper can be slit and placed on both sides of the set screw. Tighten all the set screws, raise dial to running position and run the frame for a few yards. If necessary, repeat the operation. In the end the fabric will pull even at all points and will allow for adjustment of the dial stitches to ease the strain on them. The fabric will also lay out flat and straight, instead of rolling up. Many knitters when setting in a cylinder are not careful enough to have the bottom of the cylinder and bed plate clean, leaving a bit of needle or hard waste. When screwed down fast the cylinder will be raised enough on one side to cause the same trouble as when the dial is not true. If trouble occurs in casting off dial stitches and the cloth has tension enough, move the dial cap ahead until the dial stitches cast off when the cylinder needles release. This will help some, but it will take some elasticity from the fabric.

One style of garment that we make on these fine cuts is a fine worsted plated with a No. 100 combed peeler yarn. The yarn guide has a plating hole lengthways of the guide instead of straight through the corner in the heel. These guides always plate

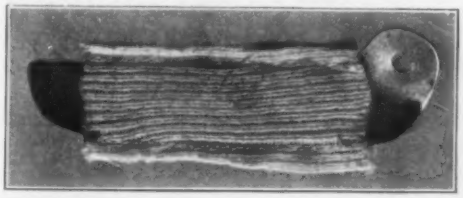


FIG. 3

good, when the cylinder latch has plenty of room to close, for the two threads are separated so well it cannot do otherwise, as shown at Fig. 2. These plating holes must be kept perfectly smooth for fine yarn will not run over the rough edges. Sometimes these edges are so sharp that the ends will cut off there instead of pulling out of the stop motion. I generally twist a string of emery cloth, about the size of the hole, and run it over these edges until they are rounded and, excepting for the first few days on a new frame, never have any trouble from this cause. When using 100s yarn we draw a cloth pad, Fig. 3, over the thread guard or blade on the stop motion. This gives a slight tension and holds the thread steady so it would not run away with the drop wire and keep stopping the frame.

We make this fabric quite tight with the dial as close as possible to the cylinders without loading up the needles, and made

the stitch or feel of the cloth, as we call it, with the cylinder stitches. When running with the dial low the ends are often cut at the guide. This is because the dial is so low that the end of the latches in the cylinder needle get inside the hole of the yarn guide and act like a pair of scissors, cutting the thread clean and even with the hole. It took me some time to decide what to do, for if I ground a trifle from the highest point of the raising cam it might affect other styles when I changed the cylinder for a coarse cut. Again I thought of having a shorter latch needle, but that would take too long to make and deliver, so I ground off the cams and took a chance, and have had no trouble since. We use a smooth face rivet in all needles, as they give a better looking stitch.

A KNITTING MACHINE STOP MOTION

The stop motion shown in the illustrations and recently patented in this country, is designed to prevent the accumulation of lint which frequently causes stop motions to become inoperative. The inventor describes the new device as follows: Fig. 1 is a side elevation of the yarn feeding apparatus of a knitting machine. Fig. 2 is an enlarged front view of a yarn feed stop, a portion being broken away to show the yarn held thereby. Fig. 3 is an enlarged plan of the yarn stop, showing the method of support. Fig. 4 is a section on the line, a—a, Fig. 2. Fig. 5 is a front view of the feed.

Suitably supported by the bed of the machine is a post, which furnishes the main support for the feeding apparatus. Clamped to the post is a bracket, which has two oblique jaws carrying a number of horizontal tension wires, which are held parallel by auxiliary jaws. Secured to the bracket is a lower tension wire parallel to the other wires, but lying in a different plane as shown.

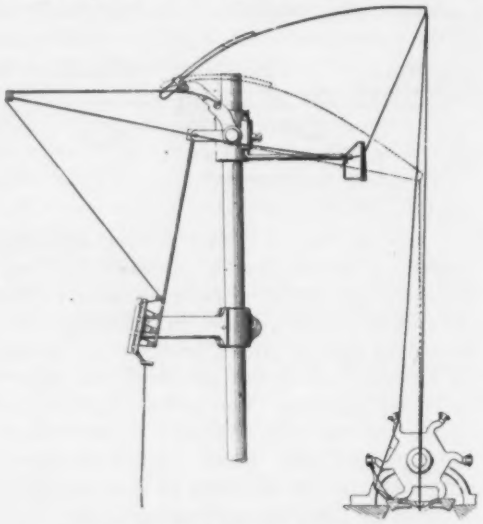


FIG. 1. SIDE ELEVATION OF THE YARN FEEDING APPARATUS

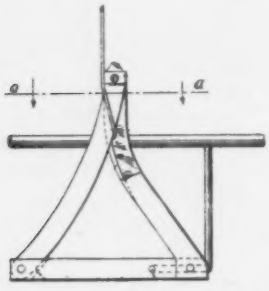


FIG. 2. ENLARGED FRONT VIEW OF A YARN FEED STOP

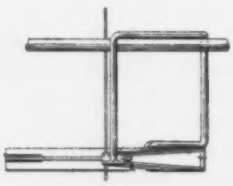


FIG. 3. ENLARGED PLAN VIEW OF THE YARN STOP

FIG. 4. A SECTIONAL VIEW OF THE YARN STOP

The yarn comes from the spool or bobbin, passes over the first wire, then alternately over the other wires and through eyes as shown, forming a tension for the yarn. The yarn passes through the eye supported by a spring tension wire, then passes through

the feed stop, up through the eye formed by the spring tension wire, and then down to the yarn carrier which feeds the yarn to the needles. The action of the improved stop will be readily understood by a description of the action of the feeding apparatus.

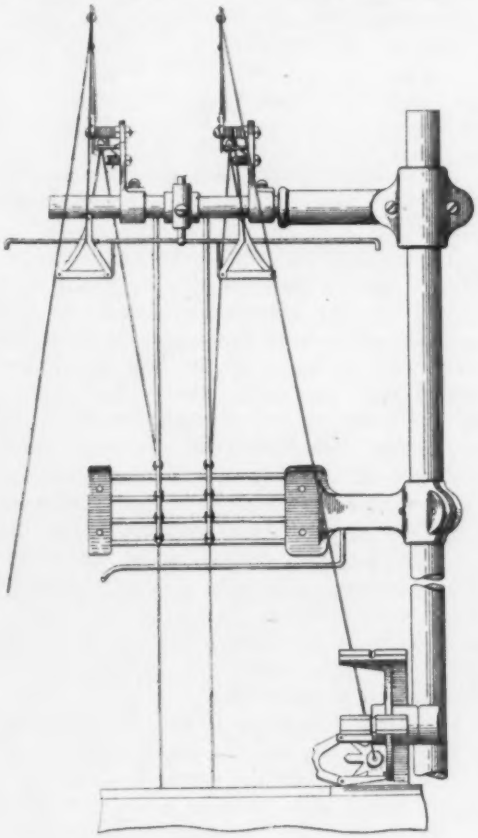


FIG. 5. A FRONT VIEW OF THE FEED

The yarn carrier holding the yarn is shown just about to start its reciprocation. The yarn carrier is carried across the needles, thus drawing the spring tension wire to a position as shown by the dotted lines in Fig. 1, and releasing the yarn from the yarn stop.

The number of establishments producing flax, hemp and jute products in America in 1909 was 149, the value of the product was $58,946,000, the capital invested was $73,393,000, and the number of employes was 26,361.

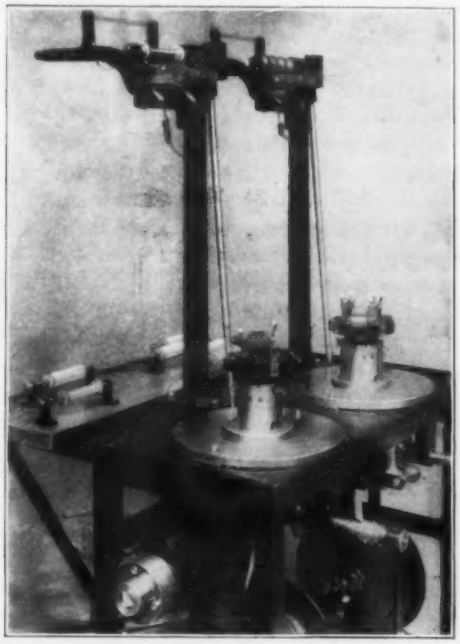
KNITTING ARTIFICIAL SILK

Mulhausen, Germany.
September 26, 1913.

Editor Textile World Record:

In the September issue of the Textile World Record we note in the Question and Answer Department some suggestions about knitting artificial silk and a discussion of a French method and machine.

We wish to inform you that we are building special machines for that purpose and



MACHINE FOR KNITTING ARTIFICIAL SILK.

are sending you photographs of a newly constructed machine for knitting artificial silk directly from rollers without rewinding it on to the bobbins. This has been most successful.

You are probably aware that we build special circular knitting machines, which are used by all important gas mantle manufacturers in Europe, including the Auer and Welsbach Companies and the Plaissety of all countries. Mr. Plaissety, as you know, is the inventor of one of the processes of making artificial silk. Claes & Flentje, Ainslie Knitting Machine Co., Brooklyn, N. Y., American Agts.

Dyeing, Bleaching, Finishing, Etc.

UTILIZATION OF WASTE KIER LIQUORS

BY HADDON

As a preliminary step in bleaching cotton, the goods are boiled in kiers in an alkaline solution made from lime or a mixture of caustic soda or soda ash and soap. The purpose of this step is to saponify or emulsify the natural impurities of cotton such as pectic acid, cotton wax, etc., and thereby effect their removal. Tests made have shown that during this treatment cotton loses about five and one-half per cent. of its weight. This amount represents the total loss although the process was continued for six hours after all the impurities had been removed. When lime is used the products of saponification are insoluble and so are precipitated on the goods, but when caustic soda or soda ash are used, however, the resultant compounds are soluble in water.

A series of tests conducted to determine the amount of alkali required for the saponification of the natural impurities of cotton showed the caustic consumed varied from 0.8 to 0.9 per cent. of the weight of the cotton being treated. The amount of caustic used in making up a boil is generally several times this amount as the reactions take place more readily in a stronger solution. Soap is added in varying amounts to increase the detergent properties of the solution. It can easily be seen then, that after the operation of kier boiling is completed there is considerable unused material in solution. The solution also contains about five and one-half per cent. of impurities dissolved from the cotton which manifest themselves by the dark color and odor of the waste kier liquor.

Before a use can be found for this waste kier liquor, its composition must be known. Experiments conducted to determine the properties of this solution yielded the following results:

Total Alkali Present	
Beginning of Boil	End of Boil
1.20%	0.44%
1.29	0.53
1.29	0.50
1.26	0.48
0.81	0.38

These percentages are figured as the amount of alkali present in a given weight of water.

Taking the first case cited. The kier contained 2,400 pounds of goods, which consumed 0.9 per cent. caustic soda or 21.6 pounds. As about 8,000 pounds of water were used to make up the boil this represented 0.27 per cent. alkali. Subtracting this from the amount of alkali present at the beginning of the boil (1.20 per cent.) gives 0.39 per cent. which should have remained at the end of the boil. As the kiers were boiled by passing steam into the liquor, the solution became diluted from the condensed steam. As only 0.44 per cent. of alkali was present at the end of the boil the solution must have been diluted a trifle over half. This was verified by noting the volume of the waste solution.

From the foregoing it will be seen that at the end of the boil the waste liquor has a little over one-third the strength it had originally, but it also contains a large amount of impurities. To concentrate the solution by a vacuum system would be simple, but the recovery of the desired materials would be impractical owing to the large amount of impurities to contend with.

It has been found that running goods through caustic and soap solution prior to running into the kiers reduces the liability of kier stains, removes adhering dirt, and having the goods wet when placed in the kiers facilitates circulation during boiling, so that goods so treated are in much better condition when they come from the kiers than if run into the kiers dry. The amount

of caustic soda and soap required for this treatment raises the cost of bleaching an amount which oftentimes is not warranted by the results obtained. It has previously been noted that the waste kier liquor is strongly alkaline, the caustic and soap present yielding about one-half per cent. of alkali, which is sufficient to produce the effects just mentioned.

By conserving the waste kier liquor which has been shown to contain over one-third the detergent properties of the fresh solution it can be used for washing the goods before they go into the kiers. After this treatment the goods should be run through fresh water to remove the impurities which might have been carried to them by the refuse liquor. This process results in improved goods along with decided economy of supplies.

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KIER STAINS

Editor Textile World Record:

I have read the article on "Kier Stains" in the September issue and would like to add something from my own experience. There are many ways in which cotton yarn and cloth may be stained in the kier, among them being:

1. The priming or over filling of steam boilers with water.

2. Not having the goods well covered or poor circulation of the liquor through the stock.

3. Leaky valves and the stock getting dry and baked on the top instead of being bleached.

4. The presence of iron in the water. This can be overcome by installing a good filtering system that will allow the water to be treated with lime or soda ash, or both, and filtering afterwards. The next best thing to do is to install a superheater and a centrifugal pump to the kier. This will save about one-half the cost of time, steam and chemicals.

For white goods I recommend using one-third per cent. silicate of soda, well boiled in either soda ash or caustic soda. If the stock is for dyeing after bleaching I would not recommend the silicate of soda as it acts as a mordant and causes cloudy and uneven dyeing. Parma.

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THE MERCERIZING OF FLAX

BY GAUL

Translated from the French by the Editor of the Textile World Record.

Jute, when subjected to a solution of caustic soda, is transformed into a fiber having the appearance of wool, hence its name, "jute wool," "animalized wool," "vegetable wool," etc. Jute, as is well known, belongs to the type of wood cellulose, containing from 60 to 65 per cent. of pure dry cellulose, the remainder being pectic and music matter. The amount of moisture varies from 9 to 12 per cent. of the absolutely dry weight. The process of mercerizing jute was patented in France by Monnet on June 7, 1889, but it is certain that the method was known before that time. Like cotton, the mercerizing of jute is carried on either under tension or without tension. The first method is the only one at present employed. Skeins of jute are immersed in a bath of caustic soda, at 36° to 40° Be. At the end of a certain time the skeins are removed, rinsed in running water, and then passed to a bath containing a small quantity of acetic acid. The yarn is then rinsed and dried. The yarn loses about 20 per cent. of its weight and shrinks about 20 per cent. in length as a result of this process.

The caustification of the fibers, while changing their appearance, also modifies their affinity for dyes. Mercerizing under tension necessitates a previous bleaching, which dissolves a large quantity of the pectic matter. As chlorine injures the fiber the material is bleached by the Beltzer process. The jute is boiled off in a solution containing 2 to 3 parts of carbonate of soda to 1,000 parts of distilled water at 140° to 160° F. From 10 to 20 parts of soluble sulpho-ricinate of soda is added for each 1,000 parts of the solution. The preliminary boiling-off lasts for 2 to 3 hours. The material is handled at a low temperature, 120° to 140° F., for three-quarters to one hour, in a solution

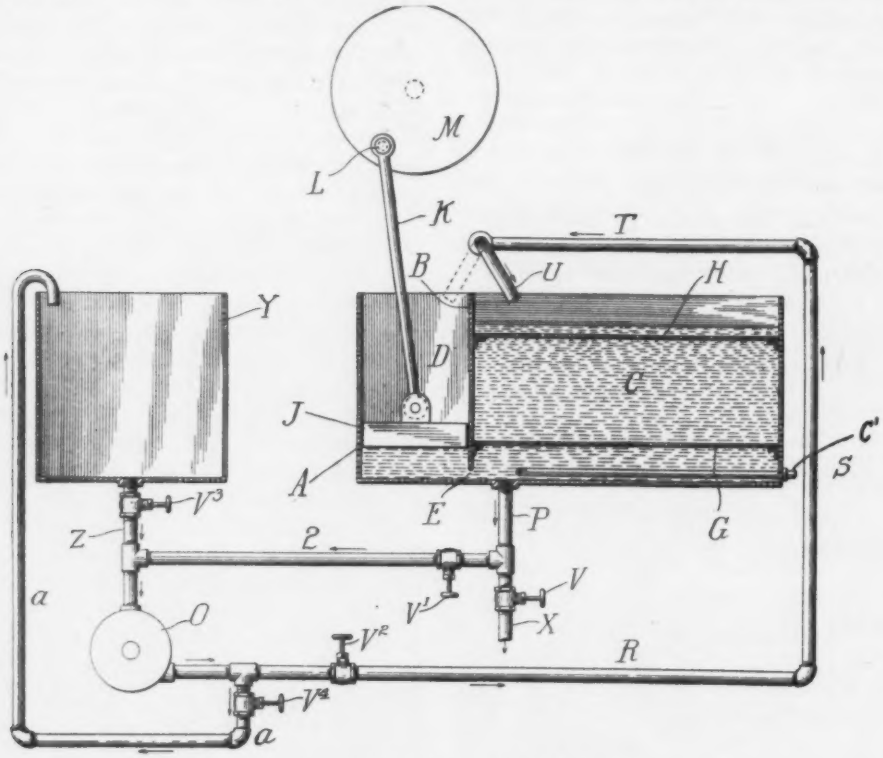
containing 2 to 4 parts of peroxide of sodium to 1,000 parts of water.

After rinsing in water the yarn is immersed in a solution containing one part bisulphite of soda at 35° Be., 10 parts of water and 1/20 part of oxalic acid. The yarn is treated in this solution at 160° to 190° F. for 8 to 12 hours. It is then washed and soured in a solution of one part oxalic acid to 1,000 parts water, and dried. The yarn is then mercerized by the process used for cotton.

A DYEING MACHINE FOR RAW STOCK

The machine shown in the illustration, recently patented in this country, is intended for the dyeing of raw material, the improvement consisting in the method of circulating the liquor through the material to be dyed. The inventor gives the following description: The liquid is forced through the material in a vertical direction and so as to give a slight lateral motion. Means are provided for continuously drawing off the liquid from the bottom of the vat and supplying it again at the top, either with or without treatment of the liquid or additions during its absence from the vat.

A tank, A, shown in the illustration, is divided by a partition, B, into a dyeing vat, C, and a chamber, D, into which the liquid from the dyeing vat may be partially withdrawn, the partition being cut away near the bottom, E, to provide a passage between the two compartments. The vat is provided with a perforated false bottom, G, at a point above the connection between the two compartments. The compartment, C, is further provided with a perforated cover plate, H, between which and the false bottom the material to be treated is confined. C′ is a heating coil.



A DYING MACHINE FOR RAW STOCK

Within the compartment, D, a plunger, J, is arranged to reciprocate loosely, and is linked by a connecting rod, K, to an eccentric pin, L, on a disk, M, for operating the plunger.

A system of piping leads from the bottom of the tank, A, through the rotary pump, O, to a point above the tank, the system including pipe connections P, 2, R, S and T. The last named section is provided at its end with a swiveled section, U, which is adapted to be swung from the full line position above the vat, C, over to the dotted line position above the compartment, D, so that the liquid may be discharged directly into either the one compartment or the other. A drain pipe, X, is connected to the pipe section, P, and suitable valves, V, V′ and V^2 are interposed in the positions shown for regulating the flow through the various pipes. A storage tank, Y, is also connected by pipe section, Z, leading from its bottom with the circulating pipe system as shown, a suitable valve, V^3, being provided to control the communication, and a return pipe, a, provided with a valve, V^1, leads from the discharge side of the pump to a point above the storage tank, Y.

In normal operation the liquid dye is placed in the storage tank, Y, the swivel pipe section, U, swung to the dotted line position over the compartment, D, the valves, V^3 and V^2, opened and the remaining valves closed. The pump is then started in operation and the dye discharged into the compartment, D. By discharging the dye into this compartment rather than directly into the compartment, C, the unevenness which would result from the discharge of the fresh body of dye in one location in a circumscribed area upon the material being dyed is avoided. After the dye has been discharged from the storage tank, Y, in sufficient quantity into tank, A, the valve, V′, is opened and the valve, V^3, closed, whereupon in the continued operation of the pump the liquid is withdrawn from the bottom of the tank and discharged into the top of the vat, C, the swivel section, U, having been swung over into suitable position for this purpose. If at any time it is desired to withdraw the liquid from the vat, the valve, V^2, may be closed and valve, V^1, opened, when the continued operation of the pump will discharge the liquid into the storage reservoir, Y. The operation of the plunger, J, gives a surging motion to the liquid in the vat, C, causing it to rise and fall therein through the perforations in the false bottom, G, and at the same time giving to the material being treated a horizontal motion or jogging, the combined action being particularly effective in securing penetration of the dye to all parts of the material. This action combined with the continuous circulation of the liquid through the pipe system secures great uniformity and quickness of action of the dye.

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PLAID BACK GOODS

BY ELMO

A serious difficulty often met in making plaid back goods is that of the plaid showing on the face of the cloth. This occurs more frequently where the face is a solid color or mixture and the back is plaided with one or more strongly contrasting colors. The fact that the trouble usually develops in the finishing and seldom, if ever shows as the cloth comes from the loom, does not signify that the finisher is at fault, though he may be able to overcome it to some extent. In doing this, however, he may find it necessary to sacrifice a part of the felted condition desirable to the best result in finishing.

The back does not show through, but it comes through, and is the result of the fibers belonging to the back working through to the face during the fulling process. The clearness with which they show depends largely upon the contrast between the colors used. If the face of the cloth is an Oxford mixture of 90 parts of black and 10 of white, and the back is a similar mixture or any dark shade with a large plaiding of white, the fibers of the latter, working through during the fulling, will show more or less distinctly, in the form of the plaiding upon the face. A closer construction of the face of the cloth may prove a preventative in some cases, but that will not correct the tendency of the fibers to "crawl" in fulling.

I had this trouble once where certain styles were very bad, while others seemed to be all right, there being no difference in the construction of the cloth. I adopted the only means possible to correct it in the finishing room, which was to close the fulling mills, apply the stretchers, drawing the cloth in length, and so force it down to the required width as quickly as possible, thus shortening the time of fulling. The superintendent criticised the finish, which was somewhat deficient in felt and firmness, but I assured him he would have to choose between the two evils, and he said: "By all means avoid the plaids showing through." The fibers of long, coarse wool, which is generally used for the back, are calculated to aggravate the trouble. They lack the felting quality to insure their keeping their place, and their length favors their appearance upon the face of the cloth. A finer and shorter wool, having a better felting quality, would felt more perfectly to the back of the cloth, and the free ends of the fibers would be less likely to get through to the face.

Where the back has a small or broken pattern of contrasting colors, such as small checks, the fibers coming through are so evenly distributed that the pattern is less likely to show. I recall a case of this kind, where an overplaiding of white, about six inches apart, showed quite plainly, while the same stock and colors in a four and four check produced no visible effect, because the fibers distributed themselves well over the face of the cloth. The best safeguard against the trouble is to avoid, so far as possible, extreme contrasts in the colors of the back, and to keep them nearer in tone with the face color. A dark face that would readily show fibers of white, might not show medium shades of solid colors, as blue, brown, green, etc. If the cloth is of medium or low grade, and there is no objection to the use of cotton, an introduction of this kind of stock, especially in colors that cause the trouble, is a most effective remedy. The cotton being non-felting stock, will keep its place, and in cloth of this character, will not very materially change the face, though of course it will tend to impair the "clothy feel" of the fabric. Trapping the cloth to shrink in length makes the difficulty worse and the use of very heavy fulling soap should be avoided. Additional twist in the back filling, to check the fulling tendency, is sometimes an advantage and as little twist as will do in that of the face, to secure the desirable softness and closeness is desirable. If it is found necessary to use a combination of colors that threaten to give trouble, it will be best to make the fabric in the loom, with little allowance for fulling, and finish with a liberal soaping and lather in washing.

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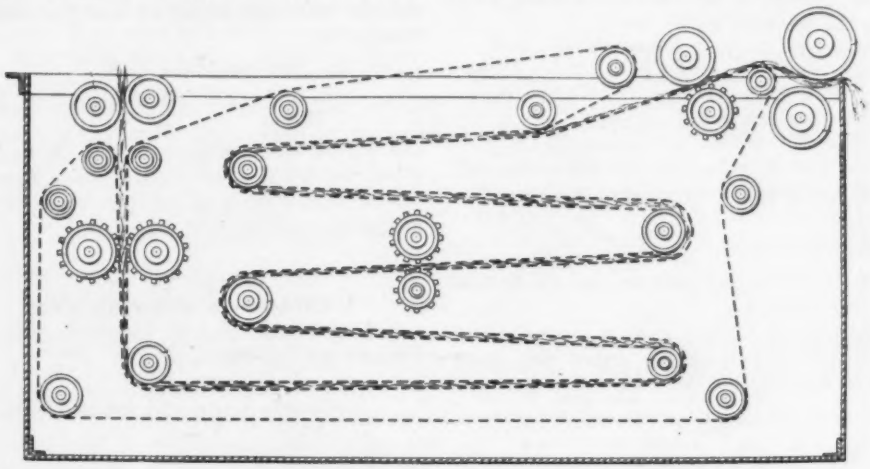
AN IMPROVED DYEING MACHINE

The dyeing machine shown at Fig. 1, which has recently been patented in this country, is designed for dyeing textile materials with the sulphur and vat dyes in a continuous operation. The difficulties connected with such a process arise from the fact that the material does not absorb the dyestuff sufficiently in passing through the dye bath. The uneven and incomplete dyeing has been due to the uneven penetration of the dye liquor into the material, and to the fact that the loose textile goods carry along air which affects the dyeing process unfavorably, especially when vat dyes are used.

With the new apparatus, it is possible to dye loose textile goods in an excellent manner as a continuous operation. This result is attained by liberating from the loose textile goods the air entangled in them by subjecting them to pressure when they enter the dye bath; and then by alternately pressing the textile material while it is in the dye liquor and allowing it to become loose so that it is again saturated with the liquor. In this manner the fibers are so thoroughly imbued with the liquor that a uniform and complete dyeing is obtained.

Considerable difficulties were encountered in putting this invention into practice, because the loose material while immersed in the dye bath has a great tendency to ascend and consequently to accumulate at the upper guide rollers when the usual vertical

travel is used, whereby a regular and smooth passage through the machine becomes impossible. This drawback is obviated by causing the material, which should be placed as loosely as possible, to move in a horizontal direction. This arrangement gave rise to difficulties, owing to the natural tendency of the fibers to ascend, in consequence of which they accumulate at the guide rollers which reverse the direction of travel. These difficulties can be removed by bringing the conveying bands together at the rollers, so that they hold the material firmly and convey it uniformly over the rollers.



IMPROVED DYEING MACHINE

Fig. 1 is a vertical longitudinal section of the dye vat, showing the conveyor bands and the fibers between them, the guide and squeezing rolls being shown in the end elevation. The material enters the vat in a layer, and is not torn apart during its travel through the vat. On entering the dye liquor it is squeezed between rolls for the purpose of removing the air.

The continuous conveying bands are made up of slats and carry the material between them. These bands travel on small rollers so placed that as the bands approach the guide rolls they come close together, and having passed the rolls, part company again. The rollers are attached to the sides of the trough. In order to avoid trouble caused by the fibers clogging the bearings of rollers, the latter are mounted in cavities in blocks suitably attached to the sides of the trough, and the rolls are suitably journaled in casings which are secured with a liquid-tight joint to the walls of the dye-vat.

As shown in Fig. 1, in order that the material may not carry more liquor from the vat than is necessary, it is passed finally between squeezing rolls as it leaves the liquor, but in order to felt the fibers and to effect a preliminary squeezing and also aid in separating loose fibers from conveyer band, before it enters between these rolls, it is pressed while still on the lower band by rolls, the construction of which is similar to that of the squeezing roll. The material is thus formed into a felt like mass which readily leaves the band as the latter turns around the roll, whereas it has heretofore been found very difficult to remove the material from the band when it has not been squeezed by such rolls. The slats are attached to brackets, the latter serving as supports for the pintles of the conveyer-chains and are spaced apart sufficiently to allow access of liquor to the material. They must be strong enough to withstand the pressure of the several squeezing rolls. The fact that the slats are spaced apart requires some special arrangement for insuring the application of uniform pressure of the squeezing rolls, as otherwise the dyed material may have a striped appearance.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 133

ORANGE ON WORSTED YARN

Milling Orange G on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Milling Orange G.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
10 lbs. Glauber's Salts.
5 lbs. Acetic Acid.

Enter at 120° F., raise to a boil during one-half hour, and dye at a boil for one-half hour.

Then add

2 lbs. Acetic Acid

and boil one-half hour longer or until the bath is practically exhausted.

Milling Orange G dyes wool in a mildly acid bath, without after chroming, giving very good fastness to washing, and good fastness to light and milling.

Recipe No. 134

GREEN ON COTTON YARN

Paranil Olive D on 100 lbs. cotton yarn. Prepare the bath with

4 lbs. Paranil Olive D.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
20 lbs. Glauber's Salt (Crystal).
2 lbs. Soda Ash.

Dye at 200° F. for an hour, then rinse. Dyed yarn is then coupled by working in cold bath for twenty minutes made up as follows:

2 lbs. Paranitraniline.
4½ lbs. Concentrated Hydrochloric Acid.

On stirring complete solution takes place. Pour the solution slowly while stirring well into

7 gals. Water

as cold as possible.

The Paranitraniline thereby separates out again. The temperature of the mixture must not exceed 70° F. Then add a solution of

1 lb. Sodium Nitrite in
½ gal. Cold Water

and stir. Complete solution takes place. After about twenty minutes pour the solution through a piece of cloth into the developing bath and finally add

4½ lbs. Sodium Acetate (Cryst.)

dissolved in about 2 1/2 gals. water.

Paranil Olive D possesses good fastness to washing and in general the properties characteristic of direct cotton colors.

Recipe No. 135

YELLOW ON SILK

New Azoflavine G X on 100 lbs. silk. Prepare the dye bath with boiled off liquor to which has been added

4½ lbs. New Azoflavine G X.
(Badische Co., 86 Federal St., Boston, Mass.)

and slightly acidify with acetic acid. Bring bath to a boil and dye at a boil for 3/4 to one hour.

New Azoflavine G X will be found to give a yellow of excellent brilliancy.

Recipe No. 136

YELLOW ON WORSTED YARN

Milling Yellow 5 G on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Milling Yellow 5 G.
(Cassella Color Co., 182 Front St., New York, N. Y.)
10 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter at 120° F., raise to a boil in about one-half hour, boil one-half hour, then add

5 lbs. Acetic Acid or
2 lbs. Sulphuric Acid.

Milling Yellow 5 G possesses excellent fastness to washing, light, alkalies, carbonizing and steaming.

Recipe No. 137

BLACK ON COTTON YARN

Thion Deep Black R Conc. on 100 lbs. cotton yarn. Prepare the dye bath with

11 lbs. Thion Deep Black R. Conc.
(Kalle & Co., 530 Canal St., New York, N. Y.)
11 lbs. Thion Deep Black R Conc.
5 lbs. Soda Ash.
30 lbs. Common Salt.

Dissolve the dyestuff with the sodium sulphide, then add the solution to the dye bath, which already contains the other ingredients.

Enter yarn at 180° F., and dye at a temperature just below the boil for one hour, keeping yarn

under surface. After dyeing, soften by working in a warm soap bath (140° F.), to which a little olive oil has been added.

Thion Deep Black R Conc. possesses the characteristic fastness of the sulphur colors.

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Recipe No. 138

BLUE ON UNION CLOTH (COTTON AND WOOL)

Union Blue No. 2030 on 100 lbs. union cloth. Prepare the dye bath with

4 lbs. Union Blue No. 2030.
(Innis Speiden & Co., 46 Cliff St., New York, N. Y.)
40 lbs. Glauber's Salt (Crystal).

Enter at 100° F., work at this temperature for 20 minutes, then raise to a boil, and boil 20 minutes. Shut off heat, and allow to cool in the bath for 20 minutes.

Union Blue No. 2030, when applied by this method, will be found to be an excellent color for cotton and wool union material.

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Recipe No. 139

VIOLET ON WORSTED YARN

Sulphon Violet R Extra on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Sulphon Violet R Extra.
(Bayer Co., 117 Hudson St., New York, N. Y.)
5 lbs. Ammonium Acetate.
10 lbs. Glauber's Salt.

Enter at 110° F., raise slowly to the boil, and dye at a boil until the bath is exhausted. In case the bath does not exhaust after 3/4 of an hour boil add

3 lbs. Acetic Acid.

The bath should be kept slightly acid through the whole dyeing operation.

Sulphon Violet R Extra possesses very good fastness to alkali, washing, milling and rubbing. It will be found serviceable for the dyeing of loose material, slubbing, weaving and knitting yarn.

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Recipe No. 140

RED ON COTTON YARN

Benzoform Red 2 G F on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Benzoform Red 2 G F.
(Bayer Co., 117 Hudson St., New York, N. Y.)
20 lbs. Common Salt.

Dye at a boil for one hour, and then after treat for 1/2 hour at 140° F. in a fresh bath made up with

2 lbs. Formaldehyde.

Benzoform Red 2 G F then thus after treated possesses good fastness to washing and alkali.

Recipe No. 141

BLACK ON WORSTED YARN

Kresol Black S V on 100 lbs. worsted yarn. Prepare the dye bath with

6 lbs. Kresol Black S V.
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
20 lbs. Glauber's Salt (Crystal).
4 lbs. Sulphuric Acid.

Enter at 140° F., and dye at a boil one hour.

Kresol Black S V will not stain white cotton threads and possesses especially good level dyeing and penetrating properties.

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Recipe No. 142

YELLOW ON SILK

New Azo Flavine R X on 100 lbs. silk. Prepare the dye bath with boiled off liquor to which has been added

4½ lbs. New Azo Flavine R X.
(Badische Co., 86 Federal St., Boston, Mass.)

and slightly acidify with acetic acid. Bring bath to a boil and dye at a boil for 3/4 to 1 hour.

New Azo Flavine R X will be found to give a yellow of excellent brilliancy.

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Recipe No. 143

BLUE ON WORSTED DRESS GOODS

Blue on 100 lbs. worsted dress goods. Prepare the dye bath with

3 lbs. Amazo Navy Blue G.
2 lbs. 8 ozs. Amazo Violet 4 B O.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
20 lbs. Glauber's Salt.
3 lbs. Oil of Vitriol.

Enter at 120° F., and bring to boil in 20 minutes and boil one hour or to shade. The colors used to produce this shade are recommended for their excellent leveling properties and their all round good fastness to light and washing.

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Recipe No. 144

BROWN ON WORSTED DRESS GOODS

Brown on 100 lbs. worsted dress goods. Prepare the dye bath with

7 ozs. 157 grs. Amazo Blue.
6⅗ ozs. Amazo Brill. Red 2 B.
1 lb. 8 ozs. Amazo Yellow R.
4⅘ ozs. Amazo Violet 4 B O.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
20 lbs. Glauber's Salt.
2½ lbs. Oil of Vitriol.

Enter at 120° F., bring to boil in 20 minutes and boil one hour.

The colors used to produce this brown are of excellent leveling properties and suitable for all classes of wool dyeing.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Binder Frame for Cotton Spinning Frames. Earl C. Moss, 805 Merchants Loan & Trust Co., Chicago, Ill. An improved double adjustable binder frame designed to meet the conditions in a cotton mill where individual ropes are used to drive the spinning frame. A description appears in this issue.

Pompom Machine. The Reliable Knitting Works, Milwaukee, Wis., are putting on the market an improved pompom machine. It is stated that with one operator attending it, the machine can produce 100 dozen pompoms per day without waste.

Expansion Piston. The Codd Tank & Specialty Co., Baltimore, Md., are placing on the market an expansion piston for use on the water end of steam pumps. As the packing wears, the adjustable expansion takes up the loss and keeps the suction perfect. It avoids frequent renewals of the packing. It is particularly advantageous where acid solutions are used or where water is pumped along with sand or gritty substances.

Hosiery Dyeing Machine. Uniform Dyeing Machine Co., Groveville, N. J. An improved dyeing machine for hosiery. An article describing it will be found in this issue.

Fancy Plush Fabric. There has recently been placed on the French market a fancy plush fabric in which the design is produced by a change of the weave, which causes a change in the inclination of the pile. We hope to give a detailed description of this fabric in an early issue.

Cloth Expander. Vernon Engineering Works, Manchester, England, have recently placed on the market a new improved cloth expander which embodies a number of improvements.

Hydraulic Press. Moritz Jahr, Actien-Gesellschaft, Gera, Germany. An improved plant for pressing cloth in an hydraulic plate press. Mechanical means are provided for folding the goods for the press and unfolding them after pressing.

Loom Swell. Henry Livesey, Ltd., Blackburn, Eng., are manufacturing an improved loom "swell" adapted for loose red looms.

Strengthening Cotton Yarn. Raymond W. Jacoby, Scranton, Pa., has discovered a method of increasing the strength of cotton yarn. Tests of the process show that 2/40s yarn breaking at 134 pounds had a breaking strength of 174 pounds after treatment by the new process.

Gassing Frame. Joseph Stubbs, Manchester, England. An improved gassing frame for cotton yarn which operates with a quick traverse and is provided with a ventilating hood.

Loom Picker Check. Edward Smith & Son, Bradford, England. An improved picker check which it is claimed, greatly prolongs the life of the loom.

Roving Frame. W. Schlafhorst & Co., M. Gladbach, Germany. A method of driving ring frames for spinning and twisting by which the speed is automatically varied.

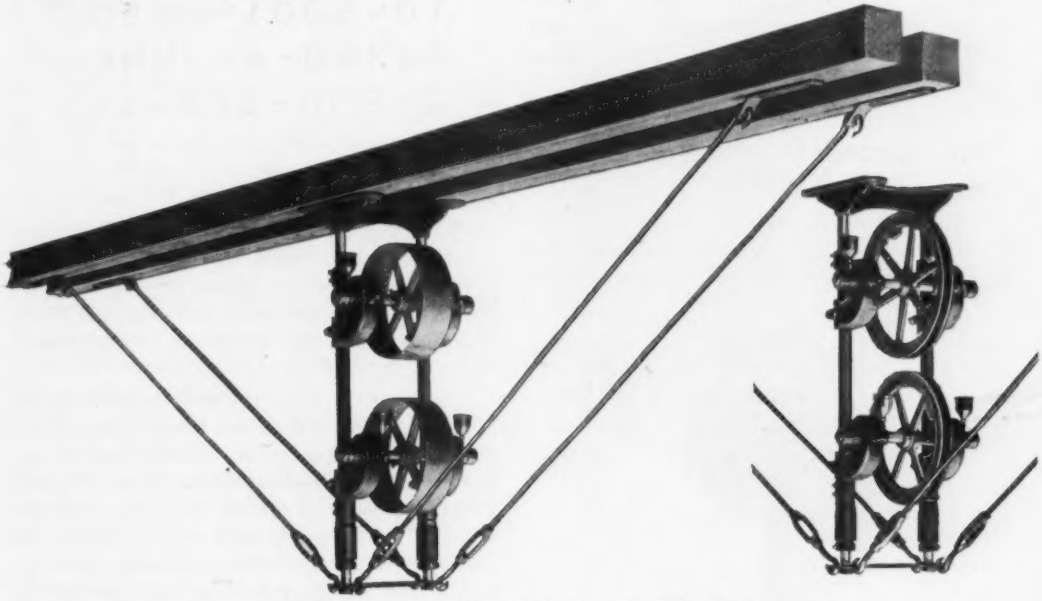
Decatizing Cylinder. Kettling & Braun, Crimmitschau, Germany. An improved cylinder for decatizing or steam blowing finished goods. A cooling appartus is introduced in the cylinder in order to combine a low pressure of steam with a high degree of humidity.

THE MOSS BINDER FRAME FOR COTTON SPINNING FRAMES

The Moss double adjustable binder frame was designed some four years ago to meet the severe conditions in a cotton mill where individual ropes were used to drive the spinning frames. To make a high grade of yarn it is necessary that the spindles run at a uniform speed. To accomplish this result the driving belts or ropes must be kept at a uniform tension. This factor is constantly changing due to atmospheric changes and variations in load, which necessitates the adjustment of the tension, which is done by means of the binder frames. It has hitherto been difficult with old types of frames to make quick adjustment, due to the inaccessibility of the adjusting parts and the number of nuts which had to be handled. The special features of the Moss frame are:

First: Each pair of bearing yokes is mounted on steel tubes which are fitted with collars to permit the tubes to slide on the vertical standard shafts. The lower collars rest upon long, hollow, chambered, threaded nuts which are bored on the upper end to fit the standard shaft and threaded on the inside lower end to match threads of the stationary threaded plunger. This plunger is bored to fit the shaft and fitted with set screws which permits its being set at any point on the vertical shaft.

Second: The vertical shafts are tied together at the bottom with an especially designed malleable tie plate and the frame is further braced to the ceiling by means of four 7/8 inch rods, each of which is fitted with a turn buckle and ceiling hook plate, making the frame strong and capable of severe service at high speeds.



THE MOSS BINDER FRAME FOR COTTON SPINNING FRAMES

Third: To adjust a frame a monkey wrench is not necessary as the upper part of the chambered nuts is drilled radially to receive a rod, bolt or lag, which, when inserted, may be used to turn the threaded nuts on the stationary plunger and raise the steel tubes on which are mounted bearing yokes and steel plates. When adjusting nuts have been raised to the ends of the threads on plungers, the set screws in tube collars are set and the set screws in the stationary plunger are loosened, the latter being screwed up into the chambered nuts and these set screws reset. When further adjustment is necessary the above described process is repeated until the upper tube col-

lars come in contact with the cast iron ceiling plate.

The inventor claims that mill use has demonstrated that these frames have greater adjustment and can be more quickly operated when running at full speed than any other frame. They can be used with the same degree of satisfaction with either belts or ropes. While the Moss double adjustable binder frame is fully covered by a patent and a large number are being used at present, they are only now being brought before the users of this class of machinery. These frames are being manufactured and sold only by the inventor, Earl C. Moss, Merchants Loan & Trust Bldg., Chicago.

THE "NATIONAL" POWER MARKING MACHINE

The illustration, Fig. 1, shows the National power marking machine, manufactured by The National Marking Machine Co. of

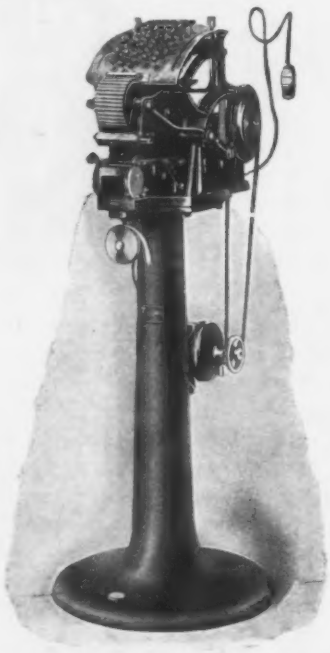


FIG 1. THE NATIONAL POWER MARKING MACHINE

Cincinnati, O. This machine has been found of great advantage in the finishing and shipping rooms of textile mills for marking the piece number, style number, the number of yards in the piece, number of the loom on which it was woven, etc.

The method is much more efficient than the present method of writing by hand, as used in the small mills, or than using a numbering stamp, like a dating stamp, as it is more rapid and accurate.

Fig. 2 shows a printed tag, used in one of the large blanket mills, the marks meaning 10 pair No. 5001 blankets, headed 50, size 60

10-5001-HE50
66X80-4-JUNE
C-P30-SER-413
W L

FIG. 2. A PRINTED TAG

by 80, weight 4 lbs., to be delivered in June on order C-P30, Serial No. 413. The number of the weaver to whom the tag is given to be woven is inserted; the number of the loom on which the goods are woven, after "L."

These tags are made out from the orders as soon as the orders are passed, and when made out are placed in drawers under the month in which the goods are to be shipped. When the piece of goods called for is woven the tag is attached, and it stays with the goods through all of the finishing process. These tags being printed in indelible ink the whole record of the piece can be traced through the factory by the tag attached.

The cloth tag is removed when the goods are finished, and the proper printed card is put on. This is a modern method of handling the shipments, and is well worth investigation. The National Marking Machine Company will be glad to give any further information when desired.

The pomegranate is frequently introduced in the weaving of Oriental rugs. This fruit was dedicated to Juno, perhaps because of the wealth of seeds it contains, as Juno was the patroness of marriage, riches and fertility.

THE STURTEVANT AIRWASHER

The new Sturtevant airwasher which has been on the market more than a year and which has been installed in many large buildings, although no notice has yet been made of it in technical journals, embodies what the makers believe to be the most practical and satisfactory airwasher principles. The airwasher, which is the result of careful study and experiment on the part of its builders, has proved its efficiency in actual service and has realized all that was hoped for it.

This airwasher whose external appearance is shown at Fig. 1, is of the rain spray type with horizontal eliminators. It consists of three parts, the spray chamber in which the washing actually occurs, the eliminators, which remove all entrained moisture from the air and the sump or tank, which forms the bottom of the airwasher and into which falls all of the air from the spray pipes and the eliminators. Fig. 1 shows the elimnators, the spray chamber and the sump. Besides these parts, a circulating pump is necessary for creating a circulation of water in the spray pipes.

When installed in a ventilating system, the arrangement shown at Fig. 2 is used. The air enters at the left, passes through a tempering coil and heater into the airwasher and from thence through a second heater into the fan. The pump and water piping are shown and a portion of the casing has been broken away in order to show the eliminators of the airwasher.

To those unfamiliar with airwashers, it may be explained that the spray by which the washing process is accomplished may be one of three types. There is the mist type in which the water is atomized by being forced through properly designed nozzles, so that the spray chamber is completely filled with the nebulus mist. The intimate contact of water with air is evidently easily obtainable by this type of spray. In direct contrast is the sheet of water type used in some washers, in which the sheet of water is formed by properly designed nozzles. Through this sheet of water, the air must pass and it will be seen that so long as this film of water remains unbroken, the air must be effectively cleaned. The rain type of spray is similar to neither of the others, for here, the spray is formed into rain like drops which fill completely the interior of the air washer chamber like a heavy rain storm falling from the top to the bottom of the spray chamber. The Sturtevant Company state that they adopted the rain type as being the most satisfactory for airwashers for ventilation work.

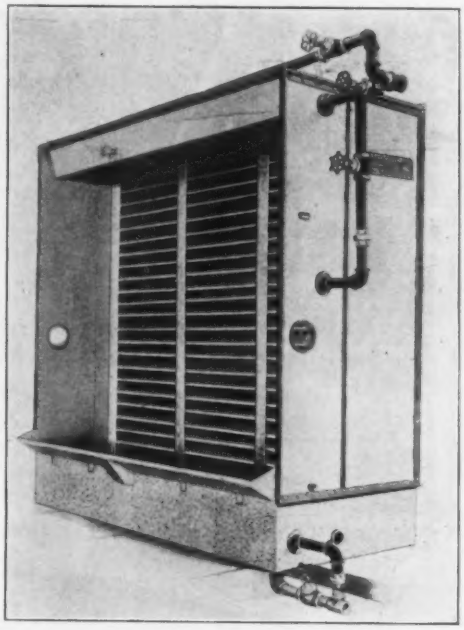


FIG. 1. THE STURTEVANT AIR WASHER

The type of nozzle forming the spray in the Sturtevant airwasher is shown in Fig. 3, while Fig. 4 shows how these are attached to the spray pipes. The design of these nozzles is unique and permits of a large orifice so necessary to prevent clogging. No flushing device is required with this type of nozzles and its efficiency is remarkable. The water issuing from the orifice under pressure created by the recirculating pump strikes against a lip curved over this orifice and is broken into a spray, spreading out broadly by reason of the shape of the lip and thus filling the chamber completely. The water falls into the sump below. The

spray chamber is constructed of galvanized steel and the interior is painted with black asphaltum.

The air passing through this rain like spray is cleansed of dirt and impurities and finally comes in contact with the eliminators, whose position in the airwasher can be seen in Fig. 1, and whose shape and construction can be seen in Fig. 5. These eliminators are placed horizontally across the airwasher and form between them, broken passages through which the air must pass in order to leave the spray chamber. The surface of each eliminator is perforated in such a way that small lips of metal are formed, the edge of each eliminator being serrated. The air laden with moisture strikes against the sharp edges of these serrations and perforations and against the edges of the metal lips where the entrained moisture is removed so that when it leaves the eliminators, the air contains no unevaporated moisture. The water dripping from these eliminators further increases the efficiency of the washing process and drains into the sump below. The eliminators are constructed of steel, galvanized after being punched and formed, and are painted with black asphaltum.

The sump, which may be constructed of galvanized iron or of concrete, is a tank into which falls the water from the spray chamber and eliminators. It is provided with an overflow which maintains a constant level of water within and with a drain and strainer. A float valve maintains the water

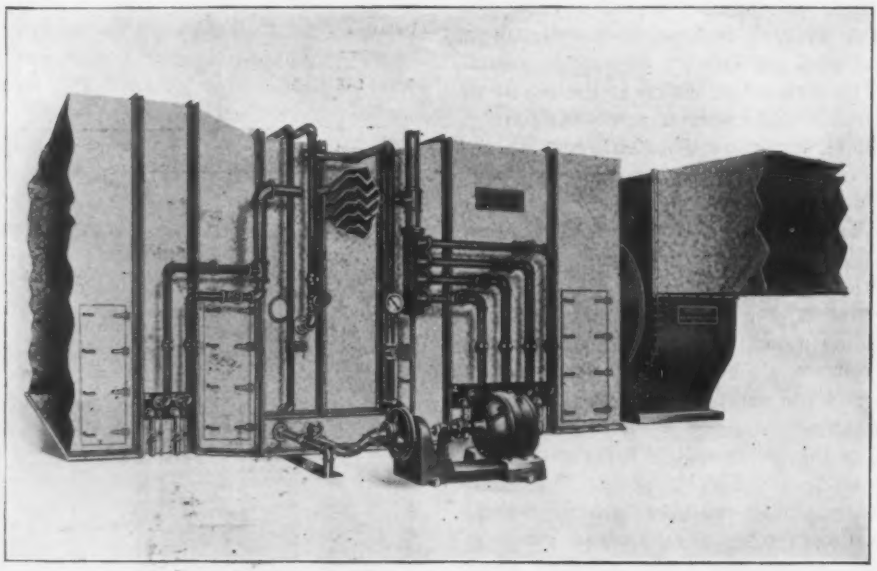


FIG. 2. TYPICAL ARRANGEMENT, SHOWING TEMPERING COIL, HEATER AND FAN

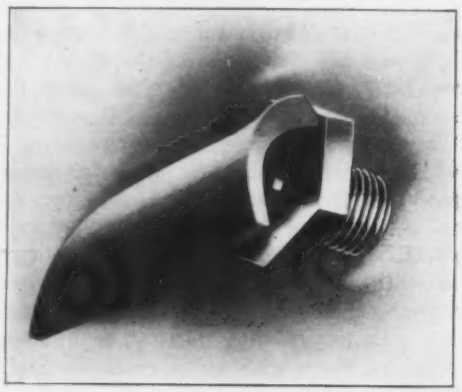


FIG 3. NOZZLE ON A STURTEVANT AIR WASHER

supply. The water is drawn from the sump by a small centrifugal pump shown in Fig. 2 and is delivered by this pump to the spray pipe under sufficient head to create the desired spray. The pump may be driven by electric motor, pulley, belt, steam engine or steam turbine. The strainer consists of two concentric, perforated, cylindrical screens enclosed at the ends by aluminum castings. The pump suction pipe draws the water from within the two screens. As the orifices of the nozzles are comparatively large, the mesh of the strainer is not so fine that excessive power is required to drive the pump. As a second wire strainer in the washer pipe is unnecessary, an additional saving in power for the pump is effected.

Some of the most important buildings in which the Sturtevant airwasher has been installed recently are:

Bureau of Engraving & Printing, Washington, D. C.
Bancroft Hotel, Worcester, Mass.
St. Paul's Hospital, Vancouver, B. C.
Empress Theatre, Sacramento, Cal.
The Rogers Building, Vancouver, B. C.
Victoria High School, Vancouver, B. C.
Standard Oil Building, San Francisco, Cal.
Oakville Company, Oakville, Conn.
The Rosenberg Company, Rochester, N. Y.
Lutcher Memorial Church, Orange, Texas.

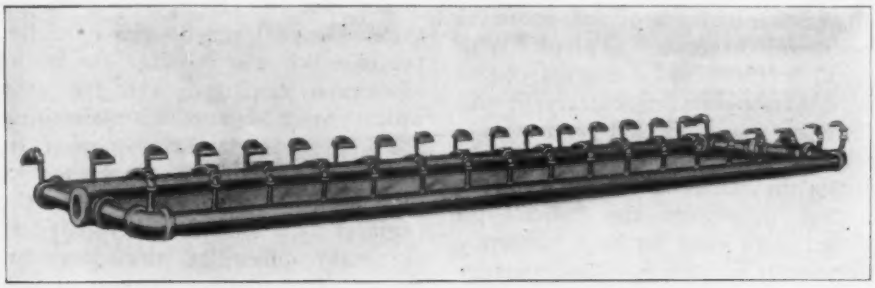


FIG 4. SPRAY PIPE, SHOWING METHOD OF ATTACHING NOZZLE

Waterbury Brass Company, Waterbury, Conn.
Bosch Magneto Company, New York, N. Y.

Other airwashers have been sold for various industrial purposes.

A 40-page catalogue, which has just been issued by the Sturtevant Company, describes the airwasher and its uses. It also contains illustrations of the various parts, valuable psychometric tables and an excellently arranged psychometric diagram together with a table of sizes and capacities of the Sturtevant airwasher. This catalogue may be obtained by addressing the B. F. Sturtevant Company, Hyde Park, Boston, Massachusetts.

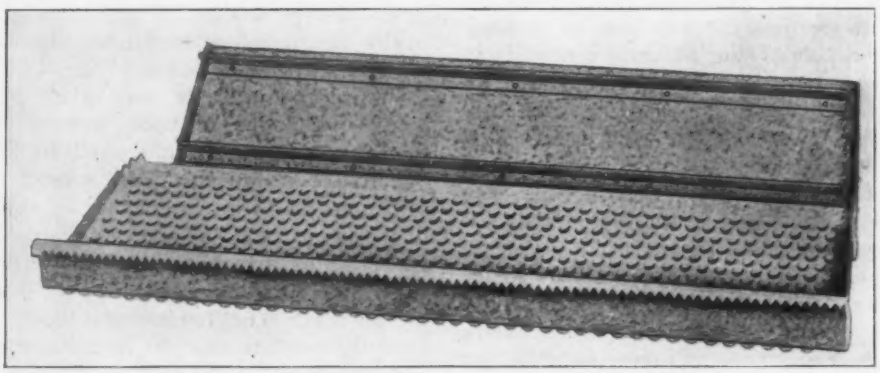


FIG. 5. THE ELIMINATOR IN THE STURTEVANT AIR WASHER

TRANSMISSION TROUBLES

By CHARLES R. TROWBRIDGE of the Dodge Mfg. Co.

Nearly every large manufacturing establishment has its department of power and plant, the portion of work including not only the care of the equipment and the generation of power, but also having in charge the general operation of the works, and thus dealing with the transmission of the power to every nook and corner of the place. With the general replacement of manual operations by power-operated machinery, it will be realized that the successful conduct of a manufacturing establishment depends almost wholly upon the maintenance of the motive power. Not only must the "wheels go 'round," but they must be kept uniformly and continuously in motion. Any interruption blocks everything, causing certain delay; while in some departments of work, notably in the manufacture of iron or steel, the stoppage of the machinery for even a few minutes may cause metal to chill, material to be spoiled, and large expense to be involved.

In some departments of manufacture it is essential that the variations from the normal speed of the machinery is fatal to satisfactory work, this being the case especially in the textile manufactories; in other lines of work the transmission appliances are subjected to heavy and irregular shocks, and must be able to meet and sustain such stresses without failure. In addition to such daily requirements as are indicated above, it is essential that the transmission system of an establishment shall be convenient so far as changes and extensions are concerned; it is often desirable to install new machinery at short notice, and the power must be got to such points of extension without serious derangement to the existing plant, and without requiring undue time. If repairs are necessary—a matter certain to arise sooner or later—the system should be so designed that the necessary work may be done with a maximum of speed and a minimum of expense.

In the vital question of maintenance the arrangement of the transmission may play a most important part in the shop economy. Formerly it was understood that from 40 to 50 per cent. of the power generated by the engines and boilers was expended in getting the effort to the machinery which did the work, and a transmission using not more than 35 per cent. was considered very efficient. This is a matter which must necessarily be governed by local conditions; but in any case the efficiency of a transmission system depends very largely upon the manner in which it is installed, the methods of lubrication employed, and the extent to which proper alignment is maintained.

There are certain transmission troubles which can be avoided only by the exercise of continual vigilance on the part of the engineer by whom it is operated; but there are many difficulties which may be altogether eliminated by the use of the most modern appliances, installed by engineers who have a fund of broad experience for their guide. Mistakes will occur in the very best plans, but there is no excuse for the repetition of the same mistake. The man who has "been there before" has a vast advantage over the man of limited experience, and there is no department of work in which practical experience is of greater value than in the design and planning of a system for the transmission of power.

Future requirements may often have a controlling influence upon present work: the question of repairs, the provision for uninterrupted maintenance, the subject of lubrication—these are a number of divisions of the large question of power transmission which all go to make up a whole concerning which the broadest experience is essential for success. The fundamental point is to have the work done right in the first place, and then most of the troubles will be eliminated.

The silk industry is one of the most important in Syria. The silkworm is produced from eggs imported principally from France, about 11,250 pounds of which, valued at about $86,850, are imported annually. The total yield of green cocoons in 1912 was 11,000,000 pounds, as against 13,200,000 pounds in 1911.

A SELF BALANCING CREEL BRAKE

BY JOHN BROWN

A very effective device to prevent the overrunning of the balls of stock in the creels of punch or other boxes, where the stock is drawn off at a rapid rate, and where

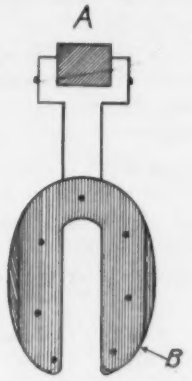


FIG. 1. THE SELF-FEED CREEL BRAKE

there is a tendency for the ball to revolve after the box has stopped, is shown in the illustration.

It is self-balancing and the smaller the ball gets, the lighter is the pressure of the brake against the end of the bobbin. Thus there is no danger of breaking the sliver

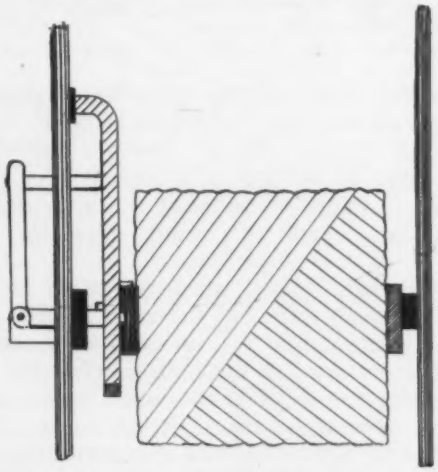


FIG. 4. A SECTION OF CREEL COMPLETE

when the balls get low. Fig. 1 shows the brake, made of wrought iron and hinged to the lug, A, which is screwed into the creel. The shaded part, B, is covered with leather where it presses against the bobbin to make it more effective. On the outside of creel another lug, C, Fig. 2, acts as a fulcrum for an L shaped lever, D. Fixed in the top of the upright arm of the lever is a light finger, D2, which presses against the top part of the brake as soon as the weight of ball and spindle rest on the horizontal arm of the

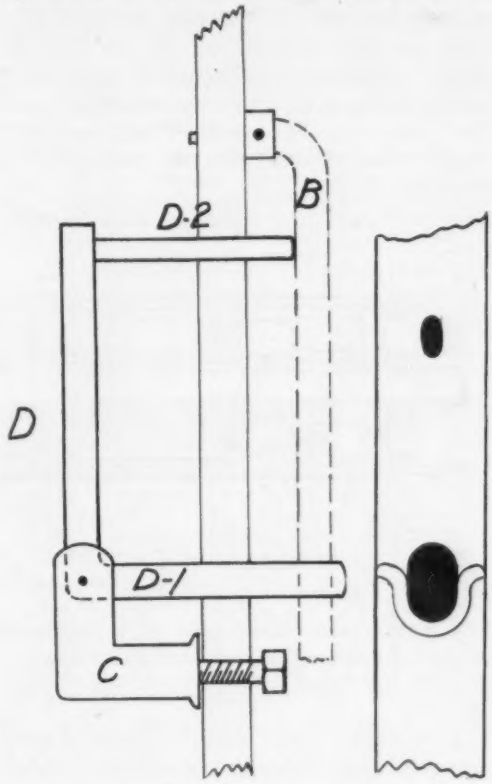


FIG 2.

FIG. 3.

lever, D1. Fig. 3 shows holes cut in the creel to allow the arm and finger to pass through.

Fig. 4 shows section of a creel with ball, spindle and brake in operating position. Where double creels are used, the brakes are fitted on the two outside legs. The use of this brake in the creels of punch boxes prevents slack ends in the balls of stock fed into the Noble combs.

CLOTH STRETCHING MACHINE

The rotary stretcher, shown in the illustrations, is an English invention recently patented in this country, and described by the inventor as follows:

This type of stretcher consists of a number of ribbed rails arranged to travel in a circular path while they are also movable in the direction of their length so as to cause more or less lateral stretch of the fabric passing over them. The new machines provide an improvement in the devices by which longitudinal movements are transmitted to the rails. The movement given to the rails may be extended to a greater length than is the case with the ordinary stretcher.

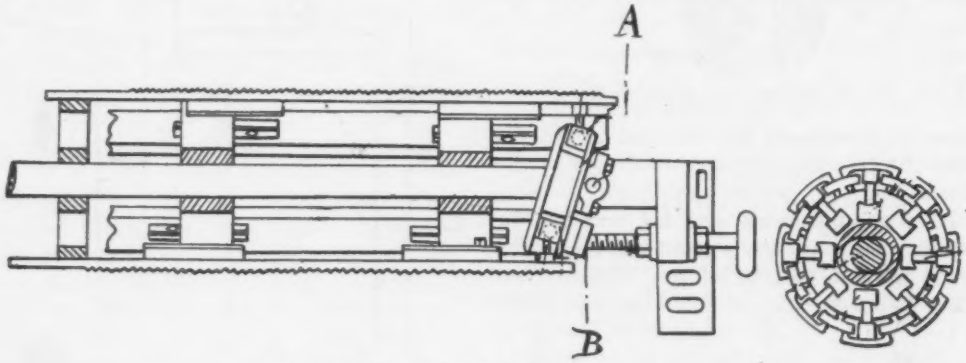


FIG. 1. CLOTH STRETCHING MACHINE

FIG. 2

Fig. 1 is a sectional plan of a revolving stretcher having the improved parts applied. Fig. 2 is a sectional end elevation on line A—B of Fig. 1.

The usual rotative series of longitudinally movable rails perform the stretching upon the cloth. The cam is pivotally mounted upon a bracket, which is supported independent of the shaft. By means of a screw the angle of the cam relative to the axis of rotation of the rails may be adjusted, the cam swinging on a pivot. The cam has flat, parallel opposing faces. One side is removable to facilitate assembling. Fitted to slide between the opposing flat faces of the cam are boxes, these boxes being entirely independent of each other so that movement of one relatively to the cam faces will be independent of movement of the others. Each block or box is formed with a recess, which is spherical in form. This recess receives the spherical head of a stud projecting inwardly from a rail. To facilitate assembling of the boxes with the stud heads, they are formed with removable cover plates held in place by screws.

When the rails are acted upon by the strip of cloth so that the rails revolve about the axis of the shaft, the rails move longitudinally by reason of their studs and the spherical heads thereof being engaged by the boxes, h, which latter must follow the contour of the annular space provided between the opposing flat faces of the cam. The flat sides of the boxes slide freely between the flat opposing faces of the cams so as to oppose the least possible resistance to the movements of the parts under the influence of the passing cloth. As the boxes move around the cam they shift to different distances relatively to the axis of rotation, and this amount of shifting is increased when the cam is shifted on its pivot so as to impart greater length of reciprocation to the rails, d.

The cam around which the boxes rotate is obviously stationary so far as regards rotary motion, and the amount of stretching to be imparted to the cloth is controlled by altering the angle of the cam. The cam is not mounted on the shaft but on an independent support, and the engagement of the spherical heads with the spherical shaped recesses of the blocks is such that there can be no disengagement, or undue friction, during the rotation of the blocks around the cam, this being true whether the angle of the cam is changed materially or not from the position shown in Fig. 1.

Personals

E. C. Sherman has been appointed superintendent at the mill of the Ludlow Manufacturing Associates, Ludlow, Mass. He comes from Pawtucket, R. I.

Elwood Ward has accepted the position of overseer of weaving at the Oakland Manufacturing Co., Reisterstown, Md. He comes from Malone, N. Y.

William P. Lockett, designer and superintendent of the Ray Mill, American Woolen Co., Franklin, Mass., has severed his connection with that company.

Raymond Norton has accepted the position of bookkeeper and pay master at the Madison Woolen Co., Madison, Me. He was formerly employed at the Barrington Mills, Great Barrington, Mass.

J. H. Gault, manager of the Excelsior Knitting Mills, Union, S. C., has resigned.

William Eccote has been appointed superintendent of the Tremont Worsted Co., Lowell, Mass., to succeed Charles E. Blake. He was formerly employed at the Chicopee Manufacturing Co., Chicopee Falls, Mass.

Robert Whittaker, owner and manager of the Robert Whittaker Woolen Co., Northboro, Mass., and Miss Helen Mae Green, daughter of Mr. and Mrs. Henry Green of Woonsocket, R. I., were married September 25 at the home of the bride in Woonsocket.

C. S. Wilkinson, superintendent of the Dwight Manufacturing Co., Alabama City, Ala., has been appointed agent, succeeding the late Charles H. Moody. Mr. Wilkinson has been in the employ of this company for a number of years, having come from New Bedford, Mass.

Herbert C. Wood, overseer of the carding department at the Tremont & Suffolk Mill, Lowell, Mass., for a number of years, has resigned his position with that company.

J. F. Illingworth has accepted the position of superintendent of the Ray Mill, American Woolen Co., Franklin, Mass. He was formerly employed as superintendent of the Iroquois Mill, Saugus, Mass.

A. M. Gillespie, overseer of dyeing at the Holmes Manufacturing Co., New Bedford, Mass., has resigned his position with that company.

W. T. Love, secretary and treasurer of the Holland Mills, Gastonia, N. C., has been elected president and treasurer of the Gastonia Mfg. Co., Gastonia, N. C.

A. A. Foreman, overseer of carding and spinning at the Dan River Mills, Danville, Va., has resigned on account of ill health.

L. E. Wofford has accepted the position of overseer of spinning at the Fountain Inn Manufacturing Co., Fountain Inn., S. C. He comes from Spartanburg, S. C.

S. P. Bland has accepted the position of overseer of weaving, slashing and drawing-in at the Inverness Mills, Winston-Salem, N. C. He was formerly employed at the Bellevue Mills, Hillsboro, N. C.

W. W. Baird has been appointed president of the Humboldt Mills, Humboldt, Tenn.

Fred F. King has accepted the position of overseer of carding at the Dominion Textile Company's Mill at Halifax, N. S., Canada. He comes from Auburn, Me.

E. E. Orrell has been appointed general manager of the Barnaby Manufacturing Co., Fall River, Mass. He was at one time employed at the Otis Co., Ware, Mass., but more recently in South Carolina.

J. J. Henderson, agent of the Royalston Mill, American Woolen Co., South Royalston, Mass., has been appointed agent of the Beaver Brook Mill, American Woolen Co., Collinsville, Mass. It is reported he will have the management of both the Royalston Mill and the Beaver Brook Mill.

A. C. Marsh, manager of the Mercury Mill, Ltd., Hamilton, Ont., Canada, has severed his connection with that company.

Anthony Keenan, overseer of carding at the Cocheco Woolen Manufacturing Co., East Rochester, N. H., has resigned to accept a similar position with the Bound Brook Woolen Mills, Bound Brook, N. J.

Henry Hamill, overseer of carding at the Bound Brook Woolen Co., Bound Brook, N. J., has resigned.

Edward Bottomley has accepted the position of overseer of finishing at the Elmville Worsted Co., Danielson, Conn. He comes from Yantic, Conn.

T. E. McCarthy, overseer of finishing at the Elmville Worsted Co., Danielson, Conn., has severed his connection with that company.

R. L. Perry has accepted the position of overseer of carding on the night shift at the Jewell Cotton Mill, Thomasville, N. C. He comes from Belmont, N. C.

L. C. Langston has accepted the position of overseer of carding at the Prendergast Cotton Mills, Prendergast, Tenn. He was formerly employed at the German-American Mill, Draper, N. C.

B. L. Leadwell has accepted the position of superintendent of the Prendergast Cotton Mill, Prendergast, Tenn. He was formerly employed at the Knoxville Spinning Co., Knoxville, Tenn.

M. C. Kirby has been appointed superintendent of the D. E. Converse Co., Glendale, S. C., succeeding S. M. Smith.

P. H. Kella has resigned his position as superintendent of the Prendergast Cotton Mill, Prendergast, Tenn., to accept a position with the Roberta Manufacturing Co., Concord, N. C.

Joseph L. Linton, assistant pay master at the Lancaster Mill, Clinton, Mass., for the past twelve years, has severed his connection with that company.

Henry Hamill has accepted the position of overseer of carding at the Bellingham Woolen Co., No. Bellingham, Mass. He comes from Bound Brook, N. J.

Leonard Junier, overseer of carding at the Greene & Daniels Co. Inc., Pawtucket, R. I., has resigned.

W. H. Loud has accepted the position of overseer of carding at the Cocheco Woolen Manufacturing Co., East Rochester, N. H.

Thomas F. McDonald has accepted the position of designer at the Bay State Mill, American Woolen Co., Lowell, Mass. He was formerly employed as assistant superintendent at the Lincoln Woolen Co., Camden, Me.

Isaac Couser has accepted the position of overseer of weaving at the United States Linen Company's mill at Beloit, Wis.

William T. Lockett has been appointed superintendent of the Garland Woolen Co., Stafford Springs, Conn., succeeding S. M. Lambert.

George McCartney has been appointed superintendent for the company which has recently taken over the Tremont Worsted Co. at Methuen, Mass. This company will manufacture cotton worsteds and worsted goods.

William Harrison has accepted the position of overseer of spinning at the Root Manufacturing Co., Cohoes, N. Y. He comes from Amsterdam, N. Y.

Samuel Auld, overseer of the weaving department at the Globe Mill, B. B. & R. Knight, Woonsocket, R. I., has resigned to accept a similar position with the Naumkeag Steam Cotton Co., Salem, Mass.

Cornelius Donahue, overseer of weaving at the Royal Mill, B. B. & R. Knight, Riverpoint, R. I., has been transferred to the weaving department of the Globe Mill, Woonsocket, R. I., succeeding Samuel Auld.

William F. Mulligan, overseer of finishing at the Glen Worsted Co., Killingly, Conn., has severed his connection with that company.

Paul G. Wetstein, overseer of weaving at the French River Textile Co., Mechanicsville, Conn., has severed his connection with that company.

Willard W. Morrison, for a number of years connected with the Amoskeag Corporation, Manchester, N. H., has been appointed resident manager of the Dixie Cotton Mills, LaGrange, Ga.

W. H. Ware has accepted the position of overseer of spinning at the Glencoe Mill, Burlington, N. C. He was formerly employed at Altamahaw, N. C.

F. D. Williams will be assistant superintendent of the new Eva-Jane Mills, Sylacauga, Ala. He was formerly employed at the Central Mills No. 2 of the same place.

J. A. Coggins has accepted the position of overseer of carding at the Edwards Mill, Crawford, Ga.

B. R. Dixon has accepted the position of overseer of carding at the Martel Mills, Egan, Ga. He comes from Greenville, S. C.

Randall N. Durfee has been appointed treasurer of the Border City Manufacturing Co., Fall River, Mass., succeeding the late E. L. Anthony.

C. H. Lee, superintendent of the Manchaug Co., Readville Cotton Mill, B. B. & R. Knight, Readville, Mass., has resigned his position with that company.

H. E. Richmond has accepted the position of superintendent of the Manchaug Co., Readville Cotton Mill, B. B. & R. Knight, Readville, Mass. He was formerly employed at the Jenckes Spinning Co., Pawtucket, R. I.

H. J. Garrawher has been promoted to the position of designer at the Jenckes Spinning Co., Pawtucket, R. I., to succeed H. E. Richmond.

Frank B. Manley, manager of the Stillwater Worsted Co., Harrisville, R. I., and also the Allendale Worsted Mill, Allendale, R. I., has severed his connection with that company.

A. Kenyon, superintendent of the Silver Spring branch of the U. S. Finishing Co., Providence, R. I., has severed his connection with that company to accept a similar position with the Pacific Mills of Lawrence, Mass.

John R. Scott, oldest retired woolen manufacturer of Uxbridge, Mass., and one of the oldest citizens of that town, was given a surprise visit on October 17 at his home, it being his eighty-fifth birthday. Mr. Scott retired from the cotton business in 1909 when the J. R. & C. W. Scott Co. sold their plant to the Uxbridge Worsted Co.

Albert M. Phillips, overseer of the shipping department at the Pacific Mill, Lawrence, Mass., has resigned his position with that company, after being fifty years in their employ. He was presented with a solid gold watch chain and charm by the help in his department as a slight token of their feelings toward him. The Pacific Mill also presented him with a testimonial congratulatory to his long term of service.

H. F. Ketchum has been appointed superintendent of the Silver Spring branch of the U. S. Finishing Co., Providence, R. I. He comes from Passaic, N. J.

George Fiske, assistant superintendent of the Silver Spring branch of the U. S. Finishing Co., Providence, R. I., has resigned.

James Reynolds has accepted the position of superintendent and designer at the Baltic Mills, American Woolen Co., Enfield, N. H. He was formerly employed at the Elmville Worsted Co., Danielson, Conn.

John F. Riddel, for twenty-one years in charge of the dyeing department at the Bigelow Carpet Co., Clinton, Mass., has tendered his resignation to accept a similar position at Amsterdam, N. Y.

William A. Webb has been appointed director of the Lawrence Industrial School, Lawrence, Mass. He was formerly instructor at the Lowell Textile School, Lowell, Mass.

Charles Safford has accepted the position of overseer of finishing at the Oakland Woolen Mills Co., Oakland, Me., succeeding James R. Garnett.

Fred Barstow, overseer of dyeing at the Arlington Mill, Lawrence, Mass., and W. L. Sjostrom, formerly overseer of dyeing at the Lawrence Dye Works, Lawrence, Mass., but more recently with the Arlington Mill, have resigned their positions with this company.

Thomas M. Goulding, head dyer at the Lawrence Dye Works, Lawrence, Mass., has severed his connection with that company.

John Cochran, overseer of dyeing in the cotton yarn department at the Lawrence Dye Works, Lawrence, Mass., has severed his connection with that company.

Trubee Burrow has reentered the employ of the Pawtucket Hosiery Co., Pawtucket, R. I., as overseer of dyeing. Mr. Burrow formerly held this position.

William H. Kingsley has accepted the position of overseer of weaving at the Shetucket Co., Norwich, Conn. He was formerly employed at the Naumkeag Steam Cotton Co., Salem, Mass.

W. M. Taylor has accepted the position of overseer of weaving at the Woodside Mills, Inc., Northboro, Mass.

Thomas Leonard has been appointed overseer of weaving at the Nos. 1 and 4 Mills of the Naumkeag Steam Cotton Co., Salem, Mass., succeeding William H. Kingsley.

William H. Walsh, overseer of weaving at the Daniels Worsted Co., West Rutland, Mass., has severed his connection with that company.

John Parkinson has been appointed overseer of the cloth department of the Queen City Cotton Co., Burlington, Vt. He was formerly employed at the Farwell Mill, Lisbon, Me.

George Houston, for over forty years an overseer at the Pacific Print Works, Lawrence, Mass., has severed his connection with that company.

Edward P. Ryan, overseer of the yarn department at the Tremont & Suffolk Mill, Lowell, Mass., has severed his connection with that company.

Thomas B. O'Brien has been appointed assistant instructor of carding and spinning at the New Bedford Textile School, New Bedford, Mass.

Everett A. Adams has accepted the position of overseer of weaving at the Daniels Worsted Mill, West Rutland, Mass. He comes from the Wesserunsett Worsted Co., Skowhegan, Me.

E. E. Smith has been appointed assistant superintendent at the Dillon Mill, Hamer, S. C. He was formerly employed at Charlotte, N. C.

George E. Ennis has accepted the position of assistant superintendent at the Kincaid Manufacturing Co., Griffin, Ga. He was formerly overseer of weaving at this mill.

G. W. Brigman has accepted the position of superintendent of the Richmond Cotton Mill, Laurel Hill, N. C. He was formerly employed at the Ida Yarn Mill, at the same place.

W. T. Creswell has accepted the position of overseer of carding at the Conestee Mill, Greenville, S. C. He was formerly employed at the American Spinning Co., of the same place.

C. R. Day has accepted the position of overseer of cotton carding at the Atlanta Woolen Mills, Atlanta, Ga.

L. B. Foster has accepted the position of assistant superintendent of the Woodberry-Mt. Vernon group of mills of the Consolidated Cotton Duck Co., Baltimore, Md. He was formerly employed at the Manchester Cotton Mills, Manchester, Ga.

B. L. Ledwell has been appointed superintendent of the Prendergast Cotton Mills, Prendergast, Tenn.

Z. R. Covington has accepted the position of overseer of the shipping department at the Locke Mills, Concord, N. C. He was formerly employed at the Roberdell Mills, Rockingham, N. C.

J. F. Pruitt has accepted the position of overseer of spinning at the Dresden Mills, Lumberton, N. C. He comes from Ware Shoals, S. C.

J. C. Keller has accepted the position of overseer of spinning at the Pomona Mills, Greensboro, N. C.

J. W. Splawn has been promoted to the position of overseer of weaving at the Beaumont Mills, Spartanburg, S. C.

William Arnold has been appointed superintendent of the Manchester Cotton Mills, Macon, Ga. He comes from La Grange, Ga.

J. C. Bowling has accepted the position of overseer of weaving at the E. A. Smith Manufacturing Co., Rhodhiss, N. C.

E. F. Brown has been appointed superintendent of the Glendale Mills, Glendale, S. C. He was formerly employed at Clifton, S. C.

Fred Houser, secretary of the Atlanta Convention Bureau, Atlanta, Ga., announces that the Southern Textile Association will hold its next convention in Atlanta on November 21 and 22. The Ansley Hotel has been selected as the meeting place. This Association is composed of superintendents and overseers of Southern cotton mills and has a membership of nine hundred.

J. M. Slasson has been appointed general manager of the Lawrence, Webster Co., Malone, N. Y., succeeding J. F. Wright.

D. J. Ross, superintendent of M. C. Migel's Mill at West Hoboken, N. H., has resigned.

Samuel Aronsohn has resigned his position with Samuel J. Aronsohn, Inc., Paterson, N. J., and will become a partner of Aronsohn Bros. Silk Co. Inc., of the same place.

Peter H. Donnelly, for the past seven years overseer of ring spinning, spooling and slashing departments at the Page Mill, New Bedford, Mass., has severed his connection with that company to accept a similar one with the Osborne Mill, Fall River, Mass. He was presented with a large traveling bag by the help in his department.

Joseph Watters, superintendent of the Osborne Mill, Fall River, Mass., and one of the oldest mill superintendents in that city, both in time of service and years, has resigned his position and intends to retire from active business life. He had been in their employ forty-one years. His son, Ernest W. Watters, is his successor.

The annual meeting of the stockholders of the Berkshire Cotton Manufacturing Co., Adams, Mass., was held at the office of the company, October 9. The following are the officers and board of directors elected: president, Charles T. Plunkett; vice-president, William H. Hall; treasurer, William B. Plunkett; board of directors, Gardner Hall, Jr., William H. Hall, Charles L. Hubbard, David Gordon, Henry C. Hale, Charles H. Sherril, William B. and Charles T. Plunkett.

William Standing, overseer of weaving at the Fall River Iron Works Mills 6 and 7, Fall River, Mass., who had been in their employ for a number of years, has severed his connection with that company. He is succeeded by William Pownall, for many years a second hand.

William J. Crofts has accepted the position of overseer of carding at the James Lees & Sons Co., Bridgeport, Pa. He comes from Dayville, Conn.

Herman Stelcner, overseer of dyeing at the Yantic Woolen Co., Yantic, Conn., has secured a position with the Elmville Worsted Co., Danielson, Conn.

George A. Copeland, overseer of weaving at the Bound Brook Woolen Mills, Bound Brook, N. J., has severed his connection with that company.

L. L. Herley, overseer of carding at the Edna Cotton Mills, Reidsville, N. C., has resigned.

J. M. James has accepted the position of overseer of weaving at the Chadwick-Hoskins Mill No. 5, Pineville, N. C. He comes from Charlotte, N. C.

S. Y. McDonald has accepted the position of overseer of weaving at the Fort Mill No. 2, Fort Mill, S. C. He comes from Chester, S. C.

H. F. Kolwes, vice-president and manager of the South Texas Cotton Mill, Brenham, Tex., has tendered his resignation to take effect November 1.

B. B. Miller has been appointed overseer of carding at the Lippitt Mill, B. B. & R. Knight, Phenix, R. I., succeeding Edgar Barnes. Mr. Barnes has taken a position as second hand in the carding department at the Lancaster Mill, Clinton, Mass.

Wilfred Wells, inventor and patentee of the Wells hosiery stamp, known so well among the knit goods manufacturers throughout the United States, died at his home in Philadelphia at the age of 62 years. He was a member of the Richmond Lodge of Masons, and is survived by his widow, two sons and one daughter.

Patrick F. Doyle, overseer of finishing at the Darling Manufacturing Co., Holliston, Mass., has severed his connection with that company.

Oscar Eckland has accepted the position of overseer of weaving at the Malone Woolen Mills, Malone, N. Y., succeeding Elwood Ward.

P. J. Carey has accepted the position of overseer of finishing at the Darling Manufacturing Co., Holliston, Mass. He comes from Pittsfield, Mass.

Charles E. Haynes, formerly superintendent of the Royal & Valley Queen Mills, B. B. & R. Knight, River Point, R. I., has been appointed superintendent of the Grant Mill, Providence, R. I.

H. C. Greenlaw, who has been superintendent of the Nottingham Mill, B. B. & R. Knight, Providence, R. I., will succeed Charles E. Haynes at the Royal and Valley Queen Mills, B. B. & R. Knight, River point, R. I.

Frank W. Curry has accepted the position of superintendent of the Nottingham Mill, B. B. & R. Knight, Providence, R. I.

W. O. Holliday has been promoted to the position of overseer of weaving at the Monaghan Mills, Greenville, S. C.

A. H. McCarrell has been appointed superintendent of the Langley Manufacturing Co., Langley, S. C. He was formerly employed at the Aiken Manufacturing Co., Bath, S. C.

F. E. Smith has accepted the position of overseer of spinning at the Lydia Mills, Clinton, S. C. He was formerly employed at the Hamer Cotton Mill, Hamer, S. C.

J. T. Phillips has accepted the position of overseer of dyeing at the Aurora Mill, Burlington, N. C. He was formerly employed at the Victor Mill, Greer, S. C.

J. A. Graham has accepted the position of overseer of weaving at the Irene Mill, Gaffney, S. C. He was formerly employed at the Fidelity Mill, Charlotte, N. C.

Henry Jones has been appointed superintendent of the Walhalla Cotton Mills, Walhalla, S. C. He was formerly employed at the Monaghan Mills, Greenville, S. C.

W. D. Lawson has accepted the position of overseer of carding at the Kinston Cotton Mill, Kinston, N. C. He comes from Lockhart, S. C.

R. C. Newell, agent of the Palmer Mill of the Otis Co., Three Rivers, Mass., has tendered his resignation after thirty-six years of service at this mill. The help in his employ regret very much his departure.

John Howarth, superintendent of the worsted yarn department at the U. S. Bunting Co., Lowell, Mass., has resigned to accept a similar position with the Wanskuck Co., Providence, R. I.

DEATHS.

Jounger P. Lang, mechanical superintendent at the Botany Worsted Mill, Passaic, N. J., was instantly killed while riding in an automobile, having been struck by the engine on the N. Y. & Susquehanna Western R. R.

Charles B. Bigelow, former owner of the Bigelow Carpet Co., and the Clinton Wire Co., of Clinton, Mass., who retired from active service some years ago, died in London, Eng., September 29 in his sixty-fourth year. He is survived by a wife and two sons.

Walter L. Holt, one of the most prominent citizens of Fayetteville, N. C., extensively engaged in the cotton manufacturing business and president of the Holt-Morgan and Holt-Williamson Mills, died at the Westbrook Hospital, of a nervous breakdown. He is survived by a wife and three children. The announcement of Mr. Holt's death was a great shock to his many friends.

Francois Foiesey, superintendent of the dyeing at the Glenallen Cotton Mill, Winchendon, Mass., died at his home in Winchendon, October 4, at the age of 71 years. He is survived by a wife, two sons and six daughters.

George O. Allen, for more than twenty-five years overseer of carding at the Rodman Manufacturing Co., Lafayette, R. I., died at his home in Davisville, R. I., at the age of 72 years. He leaves three daughters.

Louis Robeson died at his home in Brookline, Mass. He was many years treasurer of the Appleton and Peabody Mills of Lowell, Mass. He was born in New Bedford, Mass., and several years ago was treasurer of the Robeson Cotton Mill in Fall River, Mass., which was founded by his grandfather. He retired from active business about three years ago and is survived by a widow and one daughter.

George Simpson, 84 years of age, one of the silk experts of Paterson, N. J., and one of the first silk workers of that city, died at his home in Paterson October 17.

George Raymond Topliff, for a number of years identified with J. Koshland & Co., woolen merchants, Boston, Mass., and widely known among the wool trade, died at his home in Brookline, Mass., on October 18.

J. Herbert Sawyer died at his home in Boston, Mass., October 13. He was born in Henniker, N. H., June 10, 1837. Mr. Sawyer was the inventor of the Sawyer spindle which revolutionized the cotton spinning industry some years ago. He was formerly agent of the Otis Co., Ware, Mass., a position he resigned to accept a similar one with the Appleton Co., Lowell, Mass., which position he held until the patents for his spindle were taken out. In 1880, following the death of his wife, he removed to Boston, Mass., and became treasurer of the Newmarket Manufacturing Co., Newmarket, N. H., and the Chicopee Manufacturing Co., Chicopee Falls, Mass. He held these positions until his retirement about fifteen years ago. Mr. Sawyer was one of the original members of the New England Cotton Manufacturers' Association, trustee of the Home for Aged Men, member of the Exchange, St. Botolph and Unitarian Clubs, the New England Historic Genealogical Society, and a director of the New England National Bank.

General Frederick Sackett, for more than a decade Brigadier General and an Adjutant General of the State of Rhode Island, died suddenly at his home in Providence, R. I., at the age of 72 years. He had been in ill health for some time, yet his death, which was due to heart failure, was unexpected. Mr. Sackett had a long and honorable war record. He joined Company D militia while studying at Brown's University, answering the first call for his country. He was enrolled April 17, 1861, and mustered out on May 2. In October he was commissioned First Lieutenant of Battery C, First Rhode Island Light Artillery. After the war Mr. Sackett was in the dry goods commission business in New York and later he entered the woolen manufacturing business under the firm name of Paine & Sackett.

John G. Clair died at his home in Easthampton, Mass., at the age of 57 years. Mr. Clair was born in Southampton, Mass., and had been employed in the Easthampton Rubber Thread Co. for over forty years, having been an overseer the greater part of the time. He leaves a widow, one son and two daughters.

Fenwick Umpleby, for the past three years principal of the Bradford-Durfee Textile School, Fall River, Mass., who was previous to that time connected with the Lowell Textile School, died at his home in Pottersville, a suburb of Fall River, October 14, following a shock of paralysis. He was born in England in 1852.

Arthur L. Robertshaw, general manager of the Fern Rock Woolen Mill, Philadelphia, Pa., died in that city after an operation for appendicitis.

Ralph Gillett, president of the Berkshire Woolen & Worsted Mills, Pittsfield, Mass., died suddenly at Wakefield, Mass., on Tuesday, October 14. He was a man of large interests, principally railroad. He had been identified with the Berkshire Woolen & Worsted Mills since it was reorganized. His widow and several children survive him.

M. C. O'Brien, one of the best known boss dyers in the New England States, was buried from his home in Lawrence, Mass., at the age of 53 years. For several years Mr. O'Brien was employed at the Old Town Woolen Co., Old Town, Me., as head dyer. He also had been employed at the Robert Bleakie Co., Hyde Park, Mass., and the Cocheco Woolen Manufacturing Co., at East Rochester, N. H. He was a man who made friends wherever he was employed. His death came wholly unexpected.

The Mill News will be found on pages 161 to 223

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass.

Principles of Industrial Organization; by Dexter S. Kimball, A. B., M. E.; 272 pages, 6 by 9; McGraw-Hill Book Co., 239 West 39th St., New York. Price $2.50.

This book has been developed from a course of lectures given by the author to the senior class in Sibley College, Cornell University. The author deals mainly with the general principles of factory organization and operation. The following abstract of the table of contents shows the scope of the work: Fundamental and Historical; The Industrial Revolution; The Effects of the Great Inventions; Corrective Influences; Modern Industrial Tendencies; Forms of Industrial Ownership; Principles of Organization; Planning Departments; Principles of Cost Keeping; The Depreciation of Wasting Assets; The Compensation of Labor; Purchasing and Inspection of Materials; Location, arrangement and construction of Industrial Plants; Theories of Management.

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Ramie (La Ramie); by Felicien Michotte; 84 pages, 6 by 9; Societe de Propagande Coloniale, 45 Avenue Trudaine, Paris, France. Price $1.25.

The author of this book has been interested in the development of the ramie industry for many years, having published a book on the subject in 1893. The present volume is a revised edition of the earlier work and in it the author gives much valuable information regarding the present state and possibilities of the ramie industry. Following is an abstract of the table of contents: The Literature of Ramie, Degumming, Processes, Apparatus, The Fiber, Classification and Commercial Forms, Industrial Uses, Cordage, Paper Making, Spinning, Weaving, Dyeing and Bleaching, Present State of the Industry. The text is in French.

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Economies of Business; Norris A. Brisco, Ph. D., F. R. H. S.; 390 pages, 5 by 7 1/2; The MacMillan Co., 66 Fifth Ave., New York. Price $1.50.

The object of this book is to give business men information that will aid them in increasing the efficiency of their operations. The subject is considered under the following heads: Economic Basis of Business; Types of Business Organizations; Interior Organization; Principles of Management; The Entrepreneur; Analysis of Cost Accounting; Factory Efficiency; Efficient Business Methods; Labor Efficiency; Buying; Selling; Principles of Advertising; Mediums of Advertising; Money and Credit; Trade Marks and Copyrights; Patents, Trade Names, and Trade Secrets.

Textile Technics and Textile Trade (Textil-Technik und Textil-Handel); by Artur Weiss; 321 pages, 6 1/2 by 9 1/2; Franz Deuticke, Leipzig, Germany.

The author has compiled and arranged in systematic form a large amount of information regarding the textile industry, and by an excellent arrangement has made this volume a useful handbook for textile students, merchants and manufacturers. The contents, which are in German, are arranged under the following heads: Mineral Fibers, Vegetable Fibers, Animal Fibers, Spinning of Animal, Vegetable and Mineral Fibers, Business Management of a Spinning Mill, Weaving, Knitting, Lace Making, Embroidery and Finishing.

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A Manual of Wool Dyeing; by Clement Bolton; 211 pages, 6 by 9; Heywood & Co., 150 Holborn, London, Eng. Price $4.

The object of this volume is to provide the practical wool dyer with the information that he needs in his daily work. The contents are arranged under the following heads: 1. Wool—Its Varieties. 2. Stages of Manufacture and Forms in which the Wool is Dyed. 3. Chemistry. 4. Dyehouse Chemicals. 5. Water. 6. Scouring and Cleansing Wool. 7. Bleaching Wool. 8. Reactions of the Wool Fiber. 9. Dyestuffs. 10. Basic Dyestuffs. 11. Acid Dyestuffs. 12. Direct Cotton Dyestuffs. 13. Mordants and Mordant Dyestuffs. 14. One Bath Mordant Dyestuffs. 15. Indigo and Other Vat Colors. 16. Machinery for Wool Dyeing.

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Hand-Book of Textile Corporations (1913); 750 pages, 8 by 5 1/2 in.; Frank P. Bennett & Co., Inc., Boston. Price $3.

The second edition of this hand-book has been published and shows a large increase over the first edition in the number of concerns listed. The publication gives the location, officers, products, equipment and financial reports of many textile manufacturing concerns. The book is well printed and bound, and a very simple arrangement has been adopted.

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Hendricks' Commercial Register of the United States; 1666 pages; S. E. Hendricks Co., Publishers, 74 Lafayette St., New York. Price $10.

The 22nd annual revised edition of this work has just been issued and is the most complete edition so far published. The publishers state that manufacturers of about 6,000 articles have been added this year, none of which have appeared in any previous edition. The aim of this book is to furnish complete classified lists of manufacturers for the benefit of those who want to buy as well as for those who have something to sell and to this end there is a total of 55,000 classifications in the book, each one of which represents the manufacturers of or dealers in some machine, tool, specialty or material required in the architectural, engineering, mechanical, electrical, railroad, textile, and kindred industries. These classifications are so arranged that the book can be used for either purchasing or mailing purposes,

and the publishers are to be complimented on their simplicity, a very important factor in a work of this extent.

Industrial Notes

REMOVAL OF OFFICES

Allis-Chalmers Manufacturing Company announces the removal of the sales and engineering offices of their mining machinery department from Chicago to the Milwaukee Works at West Allis, on or before October 6th, 1913. The Chicago shops will also be removed to Milwaukee in the near future. The advantages to be gained by concentrating all departments, both commercial and manufacturing, at one plant are the reasons for this move.

C. J. ROOT CO.'S ADDITION

The C. J. Root Co., Bristol, Conn., manufacturers of automatic counters, wrought brass hinges, butts, metal stampings and hardware specialties, have just finished the addition to their plant, which is 120 by 40 ft., 3 stories, of brick and mill construction. The new building will contain the polishing, plating, and lacquering departments, and also allow increased floor space for several of the manufacturing departments. The general contractor for the building was Carlos J. Waldo, Bristol Conn. The sprinkler system, steam heating and electric wiring were installed by the F. A. Shaffer Co., Bristol, Conn.; the sprinkler tank and trestle, by the Berlin Construction Co., Berlin, Conn., the tank itself being of 20,000 gallon capacity and supplied by Stephen B. Church, Seymour, Conn.

FULTON BAG AND COTTON MILLS

The Fulton social and athletic club gave their regular monthly entertainment the night of September 26th, which was two hours of real entertainment, as there was not a dull number on the program.

The president of the club, Jas. I. Brush, announced that on the night of October 10th the president of the mills, Oscar Elsas, would address the club members and visitors.

The Fulton social and athletic club will give entertainments monthly during the winter season, varied with debates on current questions by the members of the debating society. A complete minstrel show is planned for the near future, and an "Old Folks" concert is being looked forward to.

The Lincoln Cotton Mills, Southside, N. C., will install a 35 h. p., two 50 h. p. and two 75 h. p. induction motors recently purchased from the General Electric Company.

CHEMISTRY AND DYEING

The New Bedford Textile School is planning for this fall and winter a variety of investigations in its chemistry and dyeing department which should be of considerable interest to cotton mill men. It proposes to study the question of adulteration of fabrics, in which it will in all probability work in conjunction with Congressman Francis O. Lindquist of Michigan, who is trying to put through Congress a national pure fabric law. It proposes also to study the various problems involved in the sizing of cotton goods and, of especial interest to New Bedford, to test the various kinds of coal that New Bedford mills are using to determine how near the mills are coming to secure the fuel best adapted for their power plants. The results of these investigations will be published from time to time.

The school has opened its school year with a large enrollment. In the evening classes the number of students registering during the first week this year is considerably in excess of last year, the total being nearly seven hundred. Enrollment is continuing this year. The evening curriculum has been changed this year so that it is divided into two terms of fifteen weeks each instead of extending over one term of twenty weeks. In this way it is hoped that a larger percentage of the students will be induced to finish the school term and the facilities which the school offers will thus be utilized for a greater portion of the year. A gratifying feature of the day classes is that new students come largely from those centers which have already sent students to the school.

THE GARNETT ANDREWS MILLS

One of the most novel and interesting exhibits seen at the big National Conservation Exposition, Knoxville, Tenn., was the joint exhibit of the Garnett Andrews mills which include the following plants: Richmond Hosiery Mills, Rossville, Ga.; Chattanooga Knitting Mills, Chattanooga, Tenn.; Magnet Knitting Mills, Clinton, Tenn.; Rockwood Mills, Rockwood, Tenn., and Harriman Hosiery Mills, Harriman, Tenn. The exhibit was under the supervision of C. S. Kincaid, superintendent of the Magnet Knitting Mills. The knitting machinery on exhibit was installed by the Standard Machine Co., Philadelphia, Pa.; the ribbers, by H. Brinton & Co., Philadelphia; the loopers, by the Grosser Knitting Machine & Needle Co., New York, N. Y.; the welters by the Merrow Machine Co., of Hartford, Conn.; the other machinery was furnished by the mills. The operating exhibit consisted of complete operations of the manufacture of hosiery in the grey. They were making half hose, and hose for ladies, misses and children. The operating exhibit was in charge of two competent fixers and three skilled operators who are demonstrating the merits of the products and the Standard Machine Co.'s new "G" knitter which was fully equipped for making extra heavy heels and toes, double soles, extra high spliced heels, extension top and ring toes, also garter splice, Brinton's latest French welt and plain welt ribbers, Max Nydegger's famous No. 2 Record

German loopers and the Merrow Machine Co.'s welters and underwear machines.

In connection with the operating exhibit the mills had on display a number of floor show cases in which were exhibited complete lines of the finished product from the respective plants.

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CONTRACT FOR OVER A MILE OF ROOFING

Some interesting figures appear in the contracts issued in connection with the construction of the new Michigan Central Terminal at Detroit. One of these items is for 200,000 square feet of J-M Built-Up asbestos roofing, involving five carloads of material, to be used for railroad sheds alone. If placed end to end these sheds would extent over a mile.

The contract for this roofing was given to the Detroit branch of the H. W. Johns-Manville Co., the well-known manufacturers of asbestos products, who are also furnishing the waterproofing, J-M Vitribestos smoke stack lining, 2,000 feet of J-M sectional conduit, and 16,000 lineal feet of J-M Asbestocel pipe covering for plumbing, heating and power lines throughout the building.

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EMBROIDERY BLEACHERY

The new bleachery of the Glenham Embroidery Co., of Glenham, N. Y., is now in full operation with a daily capacity of 40,000 yards. Embroidered goods exclusively are bleached. The machines are of German manufacture, made especially for this purpose. In connection with the bleaching is the singeing, finishing and mercerizing of cotton. Most of the product is manufactured at the Glenham Embroidery Co.'s works, but goods are also taken on commission.

The plant has been designed so that its present production can be easily doubled and this will be done as soon as the demand warrants. Each machine is driven by a separate electric motor and the supply of steam and hot and cold water is controlled automatically by electricity. A dam, 45 feet high, has been built across Fishkill Creek and now furnishes 1400 h. p., a part of which is used for the bleachery. The superintendent of the plant is Mr. Braunn while Mr. Westerman has charge of the finishing department and Mr. Zuppinger is assistant overseer.

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THE SOUTHERN NEW ENGLAND TEXTILE CLUB

About two hundred members and guests attended the thirty-fifth dinner of this club held at the Pomham Club, Providence, on September 20th. Owing to the rainy weather outdoor sports were out of the question, but everyone enjoyed the indoor entertainments. Luncheon was served in the upper hall of the club from 12 to 1.30 o'clock. Following this bowling, pool and singing were enjoyed. The members are indebted to Herbert W. Rice, president of the United States Gutta Percha Paint Co., Providence, for the privilege of holding the dinner at the Pomham Club.

MAYOR MIX

Melville W. Mix, president of the Dodge Manufacturing Company, widely known throughout the manufacturing world, has been nominated for mayor of his home city. This is the third time that such an honor has come to Mr. Mix, who has been elected mayor twice before, each time by a large majority. Mr. Mix was first elected mayor shortly after the incorporation of Mishawaka and his first administration brought the city from one of small proportions to a widely known municipality of some 15,000 people. He has been instrumental in building up the town as a manufacturing center, a city of homes, a city of parks, a city of lights, and power, paved streets, and all of the modern conveniences that makes life worth while in any striving community.

Mr. Mix, who is popular throughout the Hoosier state, has often been mentioned for Governor on the Democratic ticket, has twice declined a nomination for Congress, owing to his heavy business interests.

Outside of being president of the Dodge Manufacturing Company, Mr. Mix is at the head of the National Veneer Products Company, a large concern making trunks, traveling bags and leather novelties, runs a hotel and bank, is a director in a number of other South Bend and Mishawaka industries, and is now acting as receiver of the Amples Motor Car Company, president of the Manufacturers' Association of Indiana. He has held many positions of trust in the National Association of Manufacturers, efficiency societies and other organizations.

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CHANGES IN SELLING ORGANIZATION

The G. M. Parks Co., of Fitchburg, Mass., is making some change in its representatives.

F. C. Bryant, who has represented them in Rhode Island, Eastern Massachusetts and Maine for the past three years, has recently tendered his resignation in order to accept a very attractive position with the Parks & Woolson Machine Co., of Springfield, Vt.

To take Mr. Bryant's place, the G. M. Parks Co. will, on November 1st, bring North B. S. Cottrell, who has been the Parks Co.'s Southern representative for the past four years. Mr. Cottrell is a Cornell graduate and an Amoskeag graduate and was at one time assistant superintendent of the Tremont & Suffolk Mills.

Mr. Cottrell's place in the South will be taken by James S. Cothran. Mr. Cothran is very well known in the South, having been connected with the textile industry for at least fifteen years and having been Southern representative of the American Moistening Co., for seven years.

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NAPPING AND FLEECING MACHINES

Several improved types of napping, felting and fleecing machines for knit fabrics, sweaters, tocques, stockings and garments are introduced by A. W. Buhlmann, Textile Engineer of New York.

BUSINESS EFFICIENCY AND SALESMANSHIP

The Boston Young Men's Christian Union, 48 Boylston St., Boston, has planned a course of practical instruction on the above subjects, which will consist in a course of twenty lectures on Tuesday evenings in the Union Hall, beginning on October 21st. There is a small fee for the course. It is under the personal direction of H. Whitehead, a practical business man and educator, who has been employed in the development of sales plans by large business concerns. More than twenty different specialists, most of them occupying important positions in successful business enterprises, will give lectures and demonstrations and the series promises to be unusually interesting and attractive.

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ROOFING AN ENORMOUS BUILDING

The new railway exchange building, in St. Louis, is the latest holder of a world's record in office and store building construction, for it occupies an entire city block and contains twenty-one stories. The award of contract for roofing was made, after the most careful consideration of the owner, architect and builder, to the H. W. Johns-Manville Co., who furnished approximately 67,500 square feet of J-M Built-Up asbestos roofing.

This roofing is built up on the roof from successive layers of asbestos (rock) felts, cemented together and coated with Trinidad Lake asphant—both minerals. It is practically indestructible because there is no perishable material in it. It gives perfect protection against fire and is not affected by acids, chemicals, gases or the most extreme weather conditions; moreover, does not require coating, gravel nor any other form of protection. The H. W. Johns-Manville Co. will send an interesting booklet on this subject to anyone interested.

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THE ARTIFICIAL SILK INDUSTRY

By CONSUL WILLIAM H. HUNT, St. Etienne, France

Processes for producing artificial silk continue to multiply. New means of rendering the silk strong, supple, and brilliant are constantly being discovered, and the industry has now attained a high degree of perfection.

The dry-weaving process, by which the solid thread is directly obtained, has replaced the use of coagulating liquids. In spite of this, nitrocellulose silk is disappearing from the market because it cannot enter into competition with other artificial silks obtained by a simpler process and which are cheaper and more solid.

The first of these rival productions was obtained by dissolving cellulose in cupro-ammoniacal liquor. The difficulties encountered in this operation brought about the discovery of cellite, an acetyl cellulose, soluble in acetone, which might be employed for cinematograph films, being incombustible, were it not for its too great suppleness; it can be used for coating wood and metals, for it does not crack. Another substance of the same nature is sericose, which is used for printing on calico.

The solidity of all artificial silks may be increased by treating them with formaldehyde, which operation is called "stheriosage." A new application of the viscose process has been its use in the manufacture of netting by the Compagnie Francaise des Applications de la Cellulose, at Fresnoy-le-Grand, which is called undine veiling, or tulle.

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COPPER EXPANSION JOINTS

In the catalogue describing corrugated copper expansion joints, just issued by E. B. Badger & Sons Co., 75 Pitts St., Boston, Mass., are tables which contain data of value to every consulting and designing engineer, and to operating engineers who may have occasion to make changes in their steam lines. One of these tables gives the lengths of pipe cared for by a standard Badger Expansion Joint for different pressures. This table is as follows:

Length of Pipe Cared for by a Standard Joint.

Gage Pressure	50	80	125	150
Cast Iron Pipe	110	100	90	85
Steel Pipe	90	85	75	70

The same data is given in the following table for low steam pressures:

Length of Pipe Cared for by a Standard Joint.

Gage Pressure	5	15	25
Cast Iron Pipe	115	100	90
Steel Pipe	100	90	80

The above named company will be glad to send a copy of this catalogue to anyone asking for it.

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MISDESCRIPTION OF FABRICS IN ENGLAND

By CONSUL AUGUSTUS E. INGRAM, Bradford

The British Government Board of Trade, at the instance of the Silk Association of Great Britain and Ireland, recently brought suit against Albert Rendell, of Bradford, trading as the Bradford Albion Dress Co., for selling goods to which false trade descriptions, as defined by the British Merchandise Marks Act, had been applied.

The goods in question had been described as new art silk, new tussore (tussah), and silk striped voile. The case for the prosecution was that each of these descriptions amounted to a statement that each piece of material was composed of silk and that these descriptions were false, inasmuch as each material was composed not of silk, but of a mere imitation of silk, attractive, indeed, to the eye, but of less stamina than the genuine article. The defendant's case was that the word "art" in this connection was a contraction of "artificial," and that this use of the word had become so common in the trade as to exclude the possibility of any other meaning. The Bradford magistrate, following a decision in Leeds, stated that the words "art silk," written in this case with a capital "A" and without a stop (or period) after the "t," would to any ordinary person mean a fabric made of silk of which the texture or the design, or both, bore an artistic character. The meaning was not controlled or varied by considerations of price.

In regard to new tussore, the ordinary use of the word, however spelled, was to qualify silk as

being the product of what was called the wild silkworm. It was, however, also used as descriptive of the color or shade of wild silk, and in this sense was applied to other materials. If the full description, "new tussore art silk" had been charged, a case of false trade description would have been established. The third description was silk-striped voile, and to this there was no real defense.

Two convictions accordingly resulted, the fine in each case being £5 ($24.33) with £10 10s. ($51.10) costs. It is stated that this prosecution is only one of a series that have been brought at different times and places by the Board of Trade at the instance of the Silk Association of Great Britain and Ireland. Another subject of which attention is now being directed is the desirability of grading according to purity all fabrics purporting to be silk and silk goods mixed with other fabrics. At the present time a fabric may be described as silk if it contains even the smallest proportion of silk fibers. A committee is considering this question and that of the abnormal weighting of silk goods, which latter evil is considered by some as even more injurious than misdescription of silk goods.

THE 1914 TEXTILE EXHIBITION

The list of concerns, who have engaged space for the Textile Exhibition, which is to be held in the Mechanics Building, Boston, April 27th to May 2nd, 1914, already assures its success, in a a measure surpassing that of any previous exhibition.

When the Exhibitors' Association decided to make the exhibition more general in its character so as to cover the entire textile industry and engaged the entire Mechanics Building in order to carry out that plan, there were some who thought that it was too big an undertaking. The doubters must surely be convinced, upon reading the following list of exhibitors who have engaged space up to date, that the success of the exhibition on the larger scale plan is beyond question.

The old hall, now known as "Department B," has been completely sold up and in "Department A," the new hall, sometimes called "Grand Hall," nearly two-thirds of the space has been engaged. There are, however, still some very desirable spaces left in this hall, including some choice corner lots. The space in the Power Department in the basement is also being rapidly taken up. Those who are contemplating an exhibition are urged to make their reservations at the earliest possible moment or they may find that it is too late. Write to Chester I. Campbell, Secretary, 5 Park Sq., Boston, Mass., for information, and he will send diagram of the hall showing the available spaces.

Those who have already reserved space are as follows:

DEPARTMENT "A"

Franklin Process Co., Providence, R. I.
American Moistening Co., Boston.
Klauder-Weldon Dyeing Machine Co., Amsterdam, N. Y.
William Firth, Boston.
Universal Winding Co., Boston.
Macrodi Fibre Co., Woonsocket, R. I.
The J. B. Ford Co., Wyandotte, Mich.
Westinghouse Elec. & Mfg. Co., Boston.
Am. Wool & Cotton Reporter, Boston.
The Psarski Dyeing Machine Co., Cleveland, O.
Jos. M. Wade Publishing Co., Boston.
Richards, Atkinson & Haserick, Boston.
Barber-Colman Co., Rockford, Ill.
Cell-Drier Machine Co., Taunton, Mass.
Carrier Air Conditioning Co. of Am., New York.
General Electric Co., Schenectady, N. Y.
Thos. Leyland & Co., Boston.
The G. M. Parks Co., Fitchburg, Mass.
N. Y. Revolving Portable Elevator Co., Jersey City, N. J.
Empire Duplex Gin Co., New York.
Morse Chain Co., Boston.
W. T. Lane & Bro., Poughkeepsie, N. Y.
U. S. Gutta Percha Paint Co., Providence, R. I.
Textile Mfrs. Journal, Boston.
Lord & Nagle Co., Textile World Record, Boston.
Borne, Scrymser Co., Boston.
Davis & Furber Machine Company, No. Andover, Mass.
Richards, Atkinson & Haserick, Boston.
Emerson Apparatus Company, Boston.
Southern Textile Bulletin, Charlotte, N. C.
Hinds & Coon, Boston.
Cotton Publishing Co., Atlanta, Ga.

DEPARTMENT "B"

Alfred Suter, New York.
Cling Surface Co., Buffalo, N. Y.
H. W. Butterworth & Son Co., Philadelphia, Pa.
S. F. Bowser & Co., Inc., Fort Wayne, Ind.
Henry L. Scott & Co., Providence, R. I.
The stafford Company, Readville, Mass.
Mason Machine Works, Taunton, Mass.
Textile Finishing Machinery Co., Providence, R. I.
Cork Insert Co., Boston.
Saco Lowell Shops, Boston.
Crompton & Knowles Loom Works, Worcester, Mass.
Arlington Machine Works, Arlington Heights, Mass.
William Sellers & Co., Inc., Philadelphia, Pa.
Dodge Mfg. Co., Boston.
Holyoke Machine Co., Worcester, Mass.
Enterprise Rubber Co., Boston.
Textile American, The, Boston.
S. K. F. Ball Bearing Co., New York.
Lewis E. Tracy Co., Boston.
Draper Company, Hopedale, Mass.
Am. Warp Drawing Machine Co., Boston.
Foster Machine Co., Westfield, Mass.
John Hetherington & Sons, Ltd., Boston.
International Engineering Works.
Jefferson Union Company.
Woonsocket Machine & Press Co., Woonsocket, R. I.
Potter & Johnson Machine Co., Woonsocket, R. I.
Fales & Jenks Machine Co.
Easton & Burnham Machine Co.
T. C. Entwistle Co., Lowell, Mass.
Wm. V. Threlfall Co., Boston.
Whitin Machine Works, Whitinsville, Mass.

Am. Tool & Machine Co., Boston.
Birch Bros., Somerville, Mass.
Jones & Hardy, Inc., Hudson, N. Y.
John H. Giles Dyeing Machine Co., Amsterdam, N. Y.
Boston Belting Co., Boston, Mass.
Hess Bright Mfg. Co., Philadelphia, Pa.
Philadelphia Drying Machinery Co., Philadelphia, Pa.
C. J. Root Mfg. Co., Bristol, Conn.

DEPARTMENT "D" POWER DEPT.

Thermograde Valve Company.
Warren Webster Co.
Nashua Machine Co.
Eagle Oil & Supply Co.
Nightingale & Childs Co.
McLeod & Henry Co.
American Oil Co.
J. Henry Blanchard.
McClave Brooks Co.
Autoforce Ventilating Co.
National Engineer.
Autogenous Welding Co.
Mason Regulator Co.
B. L. Ames.
Walworth Mfg. Co.
Edward Steam Specialty Co.
Buckeye Engine Co.
Ashton Valve Co.
Pratt & Cady.
Lunkenheimer Co.
Harrison Safety Boiler Works.
Schumaker & Santry Co.
Perfection Grate Co.
Patterson Lubricating Co.
Coppus Engineering & Equipment Co.
The Rote Company.
W. J. Hyland Mfg. Co.
Evans Mill Supply Co.
Federal Metallic Co.
F. W. Foster & Sons Co.
Albany Lubricating Co.
Schaeffer & Budenburg Mfg. Co.

DEPARTMENT "F"

Frederick H. Gowing, Boston.
Meyers Bros., New York.
Comptograph Co., Boston.
F. H. Cordtmeyer, Woodside, L. I., New York.

NEW DESIGNS IN MOTOR TRUCKS

The new series of Kissel Kar trucks is attracting a great deal of attention and it is believed that the Kissel Motor Car Company made an exceedingly popular move in building upon an additional burden basis. The company's abandonment of its 2, 3 and 5 ton designs, substitution 1 1/2, 2 1/2, 3 1/2 and 6 ton models, has met a demand from hundreds of truck owners who have hitherto been practically obliged to overload their trucks. With Kissel Kar trucks they can now take on consignments of 1, 2, 3 or 5 tons and leave additional capacity for other articles.

AUTOMATIC LOOM RECORDS

In a recent issue of "Cotton Facts" The Draper Co. publishes reports from a number of mills using Northrop looms, which are of decided interest at this time when manufacturers must make every effort to reduce the costs to the lowest possible point. The automatic loom makes possible an average saving of more than half the labor cost and usually with an increase in the weavers' wages.

From a mill with about 700 looms: 38 1/2 inch goods, print cloth weight.
Average 26 looms per weaver.

From a mill with about 1,800 looms: Wide print cloths.
20 to 22 looms per weaver.

From a mill with about 2,000 looms: Sheetings, etc.
Average 20 looms per weaver.
One weave room with 32 looms per weaver.

From a mill with about 500 looms: Convertible goods.
20 to 24 looms per weaver.

From a mill with about 600 looms: Wide prints, etc.
Northrop looms, 24 to 26 per weaver.
Common looms, 8 to 10 per weaver.

From a mill with about 1,000 looms: Export sheetings, etc.
20 to 28 looms per weaver.

From a mill with about 800 looms: Print cloths and fancies.
20 to 24 looms per weaver.

From a mill with about 950 looms: Sheetings, etc.
18 to 26 looms per weaver.
One weaver 28 looms.

From a mill with about 1,700 looms: Print cloths.
20 to 32 looms per weaver.

From a mill with about 300 looms: Sheetings.
20 to 24 looms per weaver.

From a mill with about 1,000 looms: Sheetings.
18 to 28 looms per weaver.
Two weavers 36 looms each.

From a mill with about 600 looms: Wide print cloths.
20 to 28 looms per weaver.

From a mill with about 2,800 looms: Sheetings, drills, etc.
In several cases weavers are running 24 to 34 looms each.

From a mill with about 1,300 looms: Print cloths.
16 to 36 looms per weaver.
One weaver, 40 looms.

FOREIGN MACHINE BUILDER APPOINTS AMERICAN REPRESENTATIVE

The Saechsische Webstuhlfabrik (Louis Schoenherr) have appointed A. W. Buhlmann of New York as representative for the United States and Canada. The Saechsische Webstuhlfabrik are builders of looms for Brussels, Wiltons, Axminsters and Moquette carpets and rugs and is a firm of old-established reputation in loom construction.

PAPER YARN

From the Manchester Guardian

When paper yarn was first introduced commercially, rather over twenty years ago, those financially interested in it had high hopes of its replacing jute to a large extent, and especially in the manufacture of sacks. Up to the present, of course, these anticipations have not been realized, though it must be admitted to have established itself as a standard fiber, and is now employed, either alone or more generally in combination with cotton, jute, linen, or woolen yarn, in the manufacture of quite a wide range of goods.

There are two systems used in the production of paper yarn, both of which are of German origin. In the first process, known as the Kellner-Turk system, the wet paper pulp, while still on the paper machine, is divided into small sections, pressed, dried, and subsequently twisted—or, as the makers term it, spun—on special machinery, while in the second process, the Claviez system, dry, unsized paper is cut into narrow strips of from 1/4 to 1/2 inch in width, wound on to bobbins, and then spun on a special frame.

There are several modifications of these processes worked by various Continental firms, and although the first mentioned would appear to have economic advantages, it presents many more practical difficulties, and seems to be losing ground in competition with its rival. It can be readily understood that paper yarn is by no means easy to weave. Its stiffness makes it difficult to manipulate, but with care it can be satisfactorily woven on the ordinary jute loom. Hitherto the chief use of piece goods from paper yarn has been for inside decorative work, and as upholstery material. It is also made use of for floor covering, while material made with a jute warp and paper weft is finding increasing employment in the manufacture of linoleum. Strenuous efforts have been made to popularize it as sacking, and the high prices which have prevailed for jute for some time past have favored its employment in this direction.

Ordinary paper yarn, however, has several inherent qualities which handicap it seriously as a substitute for jute in the manufacture of sacks. Owing to its smooth, stiff nature any but rather coarse material packed in these sacks is able to work its way out through the interstices in the fabric, while the cord with which the sacks are tied is very apt to slip, and the sacks are, moreover, difficult to carry. Jute warp and paper weft give better results, and sacks made from them are used to some extent. Recently a new fabric from paper yarn has been put on the market under the name of "textilose," in which the smoothness inherent in the usual qualities is overcome by first covering the paper with a fine fleece made from cotton waste. The process has been patented by Claviez, one of the original workers on this subject, and is said to yield a product suitable for the packing of fine, powdery substances, and it appears to be used rather freely on the Continent for packing cement. Those who are backing it financially, seem to have great confidence, for works for its manufacture are either running or are in course of erection in most Continental countries and in England.

One field in which paper yarn has advantages over jute is in the manufacture of sheeting for baling goods, for here serious damage may be caused by the loose fibers attaching themselves to the contents of the bale if the paper covering in which they are first wrapped gets broken through. Although piece goods from paper yarn have not made very much headway up to the present, the outlook is not really unpromising, and it is likely that more will be heard of this material in the near future.

A company has just been registered in Paris with a capital of 11 1/2 million francs, which may be increased to 20 million francs, to take over several European textilose concerns. The combination will include the English Textilose Manufacturing Company, Limited, Manchester; the Manufacture Francaise de Textilose, Paris; the Manufacture Belge de Textilose, Brussels, and the firm of Fratelli Borghi, Milan. The style of the new undertaking is the Societe de Textiloses et Textiles. The German works engaged in the manufacture of textilose are being considerably enlarged. It is reported that another product made by a new patented process from paper yarn, and which is said to have advantages over other similar products as a substitute for jute, will shortly be put on the market under the name of "stranfa." There is not much information available regarding this latest arrival, but the textilose interests profess to have no fear of it as a competitor, asserting it to be only suitable for coarse goods.

SIZING AND FINISHING COMPOUNDS

The Arabol Mfg. Co., 100 William St., New York, manufacturers of sizing and finishing oils and compounds have acquired a high reputation. Their practical experience, scientific management and up-to-date methods give them excellent facilities for meeting specific wants.

The Renfrew Mfg. Co., Adams, Mass., will equip a number of machines for individual electric drive and will install a 150 k. w. alternating current generator, 112 small motors and a switchboard, all of the equipment having been furnished by the General Electric Company.

The Park Cotton Mills, La Grange, Ga., will add one 20 h. p., one 35 h. p. and four 25 h. p. motors, switches, etc., to its electric drive equipment, the machines having been ordered from the General Electric Company.

The Riverside and Dan River Cotton Mills, Inc., Danville, Va., will add to their electrical equipment three 1750 kv-a. oil cooled transformers and three smaller 50 kv-a. transformers recently ordered from the General Electric Company.

The Sanford Cotton Mills, Sanford, N. C., will add to their equipment a 150 h. p. induction motor recently ordered from the General Electric Company.

TEXTILE BOUNTIES IN AUSTRALIA

Daily Consular Reports

The following table shows the production of various textile products in Australia and the amount of duty paid on such production by the Commonwealth Government during the years ended June 30, 1912 and 1913:

Quantity	1912	1913
Wool tops, lbs.	3,122,244	3,134,614
Flax fiber, tons	137	101
Cottonseed, lbs.	99,209	84,479
Cotton, ginned, lbs.	60,143	46,043
Sisal hemp, lbs. cwt.	168	....
Bounty	**1912**	**1913**
Wool tops, lbs.	$82,224	$63,561
Flax fiber, tons	2,336	1,046
Cottonseed, lbs.	102	63
Cotton, ginned, lbs.	550	462
Sisal hemp, lbs. cwt.	88	....

HOW TO BUY DYESTUFFS

A book recently published by the Cassella Color Co., 182 Front St., New York, will be found of great value by every buyer or consumer of dyestuffs. Its object is to aid the buyer by making him better acquainted with the vast number of coal tar dyestuffs on the market. In carrying out this object the Cassella Color Company have arranged the most important of their publications on a five-foot shelf, an illustration and catalogue of which are given in this book. Every buyer of dyestuffs should get a copy of "How to Buy Dyestuffs," and then call for such literature from the five-foot shelf as he may need for his particular line of work.

POPULAR IN ENGLAND

At a meeting of the British General Committee of the Anglo-American Exposition, held in London on October 14th, Lord Rotherham, speaking in behalf of the British Textile Committee, which is arranging for the exhibits in this line at the Exposition next year, said:

"Referring to such a branch of exhibits as the textiles, it is impossible on an occasion such as this to refrain from saying that our interest in next year's Anglo-American Exposition has been greatly stimulated by the new American Tariff that has just been passed. (Hear, hear). If one might with all humility and respect say so, the new President of the United States is remarkable for the broad and enlightened views in regard to tariff questions which he holds; and it is only right, I think, that we should show our appreciation of those views by doing everything we can to increase the business relations between this country and the United States of America, and I do not know any more useful means to that end than the holding of great exhibitions.

"I am speaking, as I have said, more on behalf of the textiles than any other class of exhibit, and I am glad to know that textiles are likely to reap very substantial advantages from the new American Tariff which we welcome as being likely to be not only to the advantage of this country but also to the advantage of the United States of America." (Hear, hear and applause.)

ANTHRAX INVESTIGATION IN ENGLAND

By Consul Augustus E. Ingram, Bradford

At a recent meeting of the Anthrax Investigation Board for Bradford and district it was reported that the special committee appointed by the British Home Office had made a large number of tests and forwarded an exhaustive report on the subject of steam disinfection of wool. The investigations showed that this method was commercially impracticable, as serious injury was done to the fiber.

A report by the British consul at Fez to the Foreign Secretary as to the prevalence of anthrax in Morocco was read, showing that the question of precautionary measures was being carefully considered by the authorities there.

The chairman reported that a recent visit was paid to Bradford by M. Cavaille, inspector of factories in France, and Dr. Koelsch, medical inspector of factories in Bavaria, who were investigating the question of anthrax and the means of prevention adopted in this district.

At the International Congress of Medicine held in London in August, Dr. Paul Ehrlich, in an address on pathology, stated that salvarsan had also been shown to have a beneficial action upon the malignant anthrax bacillis, upon that of glanders, and possibly upon that of erysipelas, both in animal experiments and occasionally in human cases

WOONSOCKET MACHINE AND PRESS CO.

An interesting event in the textile machinery trade has been the recent purchase of the control of the stock of the Woonsocket Machine & Press Company by Willett, Sears & Co., of Boston.

In a meeting held October 16th the following new directors were elected: George F. Willett, Edmund H. Sears, Ernest M. Hopkins and J. Sidney Stone. Members of the old Board who will remain on the new Board are Messrs. Campbell, Rathbun and Sweatt. Mr. Rathbun is President of the Company.

The cotton machinery branch of the business will be pushed as vigorously as before. Supplementary to this also, special attention will be given to the development of carding and the new carding process, applicable to wool as well as cotton, illustrated in our last issue. There is thought to be great promise for the future in this development.

Much of the stock of this prosperous concern has been held by estates and interests not closely identified with its operation and the introduction of these new interests with their important connections coupled with the successful management of the present administration will undoubtedly result in still greater prosperity to this active concern.

The Stark Mills, Manchester, N. H., will install a 150 h. p. motor recently ordered from the General Electric Company.

The Central Mills, Southbridge, Mass., will install two 15 h. p. alternating current motors and a switchboard recently ordered from the General Electric Company.

Recent Textile Patents

BLEACHING and for Preparing Bleaching, Deodorizing and Disinfecting Solution, Apparatus for. 1,075,873. Orlando Sumner, St. Margarets-on-the-Thames, Eng.

CLOTH PILING Machine. 1,075,558. Jacob B. Rosenstein, Cleveland, O.

DYEING MACHINE. 1,076,329. William M. Morris, Bordentown, N. J.

DYEING THREAD and Like Material, Apparatus for. 1,074,390. Bernhard Teufer, Chemnitz, Germany.

FABRICS, Craping. 1,076,608. George E. Schultz, Providence, R. I.

HOSIERY. 1,076,603. Dominick O'Donnell, New York.

HOSIERY. 1,075,864. Robert W. Scott, Leeds Point, N. J.

HOSIERY FINISHING Board. 1,075,346. George T. Flick, Philadelphia, Pa.

JACQUARD CONNECTION. 1,076,524. Walter R. Scott, Philadelphia, Pa.

JACQUARD CONNECTION for Weaving Mechanisms. 1,076,523. Walter R. Scott, Philadelphia, Pa.

KNITTING MACHINE. 1,075,262. Max Kohlsdorf, Brooklyn, N. Y.

LOOM ATTACHMENT. 1,074,682. Walter A. Woods, Wilmington, Del.

LOOM PICKER Check. 1,074,756. Edward S. Stimpson, Hopedale, Mass.

LOOM PILE Fabric. 1,075,127. N. M. Shinn, Philadelphia, Pa.

LOOM SHUTTLE or Filling Carrier. 1,076,393. Orren A. Sawyer, Lowell, Mass.

LOOM SHUTTLE, Weft Replenishing. 1,074,908. Edward S. Stimpson, Hopedale, Mass.

LOOM, Weft Replenishing. 1,074,530. Eppa H. Ryon, Waltham, Mass.

LOOMS, Power Gage Device for Picket Sticks of. 1,076,585. Franklin M. Lamb, N. Stonington, Conn.

LOOMS, Head Motion for. 1,075,862. Eppa H. Ryon, Waltham, Mass.

LOOMS. Automatic Weft-bobbin-exchanging Device for. 1,074,629. Albert G. Koechlin, Basel, Switzerland.

LOOMS. Driving Connection for Picker Sticks of Weaving. 1,072,944. Victor Riel, Manchester, N. H.

SPINDLE RETAINING Device. 1,071,297. Erastus D. Chesebro, Stonington, Conn.

SPINNING and Twisting Machines, Device for Automatically Clutching Bobbins to Spindles of. 1,072,345. Rufus S. Matteson, Providence, R. I.

SPINNING FRAMES, Top-roll Saddle for. 1,072,317. John V. Cunniff, Fall River, Mass.

SPINNING MACHINE. 1,071,061. Joseph Lacroix, Fall River, Mass.

SPINNING or Twisting Apparatus, Yarn. 1,073,022. Gianni Bettini, Paris, France.

SPINNING SPINDLE. 1,072,573. Charles H. Chapman, Winchester, Mass.

THREAD DOUBLING and Twisting Machine Attachment. 1,071,417. John S. Henry, Stonington, Conn.

ROVING and Spinning Frames, Stop Motion for Cotton. 1,075,136. Butler Ames, Lowell, Mass.

SPINNING FRAME Speed-controller. 1,075,036. William T. Holmes, Baltimore, Md.

SPINDLE. 1,075,205. Charles S. Foster, Central Falls, R. I.

SHUTTLE. 1,074,758. Felix E. Valois, Haverhill, Mass.

SHUTTLE THREADING Device. 1,074,987. Isaac Snow, Lawrence, Mass.

SPINNING SPINDLE. 1,075,461. Charles H. Chapman, Winchester, Mass.

SPINNING FRAME Tool. 1,075,602. Luke H. Rooney, New Bedford, Mass.

SPINDLE. 1,074,996. George M. Whitin, Whitinsville, Mass.

SHUTTLE, Automatically-threading. 1,074,656. John Smith, Hopedale, Mass.

SPINNING MACHINERY. 1,074,737. John J. O'Connor, Pawtucket, R. I.

WINDING MACHINE. 1,076,574. Arthur I. Harvey, Providence, R. I.

WOVEN TUBULAR Tie. 1,075,249. James C. Gaynor, Paterson, N. J.

RECENT TEXTILE TRADE-MARKS REGISTERED

69,803. Knitted, netted and woven, shawls, etc. Mark: Monarch. Owner: Rice-Stix Dry Goods Co., St. Louis, Mo.

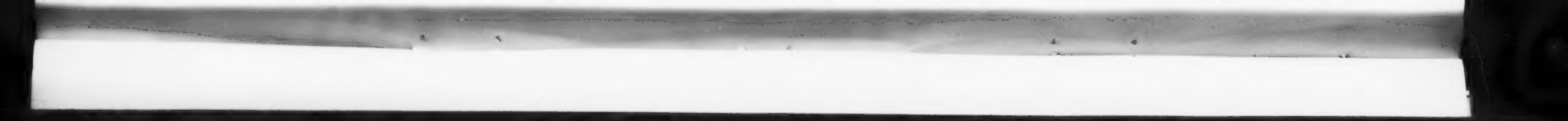
71,448. Knitted fabrics. Mark: Marigora. Owner: Marinette Knitting Mills, Marinette, Wis.

71,526. Cotton piece goods. Mark: Langdon '76. Owner: Amoskeag Mfg. Co., Manchester, N. H.

72,703. Silk, cotton and mixed fabrics. Mark: Usona. Owner: Fried, Mendelson & Co., New York.

69,011. Cut-pile fabrics. Mark: P. P. M. Moletex. Owner: Philadelphia Pile Fabric Mills, Philadelphia, Pa.

72,080. Hosiery. Mark: Crusader. Owner: Saul Mayer, New York.



C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

COTTON AND COTTON
GOODS YARNS

DIRECT IMPORTERS OF EGYPTIAN COTTON

COTTON
WOOLEN
WORSTED MACHINERY

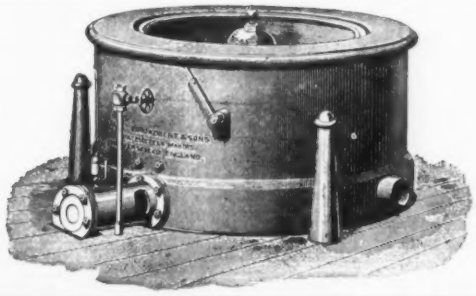
Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



SUSPENDED ON LINKS. REQUIRING NO EXPENSIVE FOUNDATIONS.

C. E. RILEY COMPANY, Sole Agents 65 Franklin St., Boston, Mass.

Machines Kept in Stock in Boston

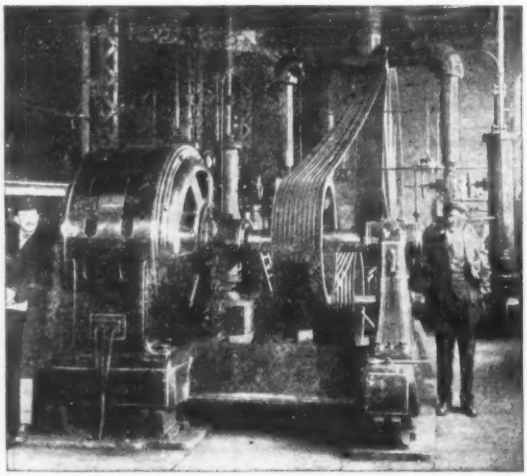
Yes Sir: Cling-Surface is unequaled for rope treatment. Here is proof.

This illustration shows one of the ropes in the plant of the Crystal Ice & Storage Co., Buffalo, N. Y. that have been typically benefited by Cling-Surface treatment. Ernest J. Lancey, Chief Engineer, has this to say:

"Cling-Surface has done these ropes much good by not only preventing the slip with less tension, but by keeping them pliable, waterproof, and keeping all the fibers lubricated, which reduces the internal friction and outside wear. We recently installed a new rope, and intend to start right with Cling-Surface. We get best results applying the Cling-Surface as the rope enters the sheave on the tension carriage."

It waterproofs (will not wash out in the rain), and stops the slipping, just as it does for belts, making the drive carry full load with reduced tension.

If you have a difficult drive on which other methods of preventing slip have failed and on which you would like to try Cling-Surface, let us know. Cling-Surface offers the solution and we are ready to prove this to you at our risk. Write today and get details.



CLING-SURFACE COMPANY
1051 NIAGARA ST BUFFALO N Y
New York Boston Chicago Denver Memphis Etc.

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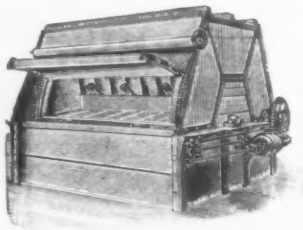
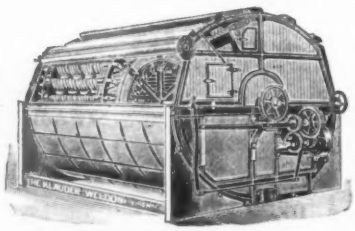


Raw Wool and Cotton Machine.

MACHINES sold on 2 MONTH'S TRIAL
YOU TAKE NO RISK

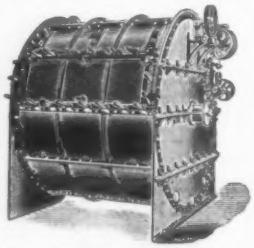


Skein and Slubbing Machine.

KLAUDER-WELDON DYEING MACHINE COMPANY

HUDDERSFIELD, ENGLAND. *AMSTERDAM, N. Y.*

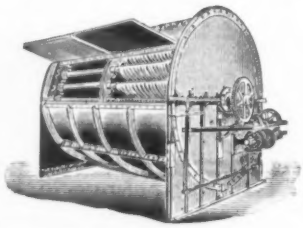
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



Sulphur Hosiery Machine.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN LABOR ALONE
IN FROM
6 TO 12 MONTHS
ACCORDING TO CAPACITY



Sulphur Skein Machine.

Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Accountants and Systematizers.
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American Tool & Machine Co.
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Lever, Oswald, Co.
Universal Winding Co.

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Curtis & Marble Machine Co.
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Franklin Process Co.
Giles, J. H., Dyeing Machine Co.
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Tolhurst Machine Works.
U. S. Hoffman Co.

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Dye Kettles.
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Dye Sticks.
Bailey, Frank.
Klauder-Weldon Dyeing Machine Co.

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Cassella Color Co.
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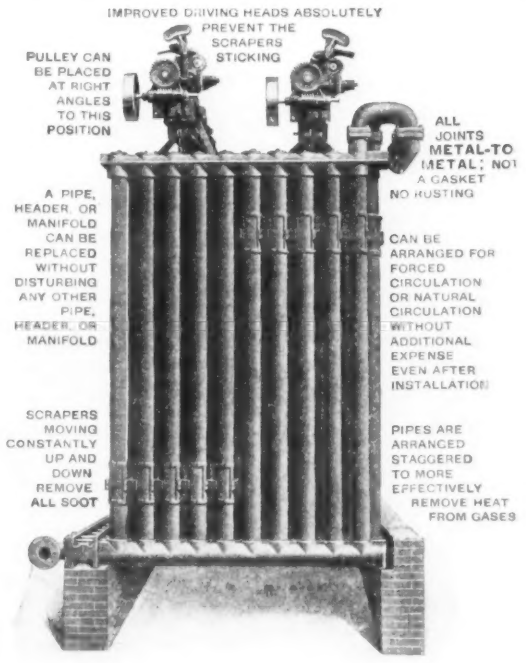
Superior Features of the Sturtevant (REG. U. S. PAT. OFF.) Fuel Economizers


IMPROVED DRIVING HEADS ABSOLUTELY PREVENT THE SCRAPERS STICKING
PULLEY CAN BE PLACED AT RIGHT ANGLES TO THIS POSITION
ALL JOINTS METAL-TO METAL; NO A GASKET NO RUSTING
A PIPE, HEADER OR MANIFOLD CAN BE REPLACED WITHOUT DISTURBING ANY OTHER PIPE, HEADER OR MANIFOLD
CAN BE ARRANGED FOR FORCED CIRCULATION OR NATURAL CIRCULATION WITHOUT ADDITIONAL EXPENSE EVEN AFTER INSTALLATION
SCRAPERS MOVING CONSTANTLY UP AND DOWN REMOVE ALL SOOT
PIPES ARE ARRANGED STAGGERED TO MORE EFFECTIVELY REMOVE HEAT FROM GASES

Metal - to - Metal Joints

The taper Metal-to-Metal joints are used throughout the entire machine. They are made without rusting or packing. They do not deteriorate. They are ground to gauge and are interchangeable. Experience has proved that they are superior to gasket joints which constantly deteriorate.

Three Hundred Pounds Working Pressure

Three hundred pounds is the working pressure for which these machines are designed. They are designed for and not merely adapted to the increasing high pressures in use in modern boiler plants.

Gravity, Forced or Re-circulation

The Sturtevant Economizer is designed for either gravity or forced circulation of the water. There are many cases where the net return from the use of forced circulation will more than offset the cost of power to produce it. Our policy in making economizer contracts is to give recommendations and leave it optional with the purchasers, whether they will have gravity, forced or re-circulation.

Staggered Pipes

The "staggered" arrangement of pipes insures the most intimate contact of hot flue gases with the entire heating surface of every pipe. This, together with the flexibility of circulation makes it possible to obtain maximum results from the economizer.

Ask for Catalog 150-T

B. F. STURTEVANT COMPANY

HYDE PARK, BOSTON, MASS., and all principal cities of the world

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General Electric Co.

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Johns-Manville Co., H. W.

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Allis-Chalmers Mfg. Co.
Dean Bros. Steam Pump Works.
General Electric Co.

Electric Fans.
Allis-Chalmers Mfg. Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
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Day, E. B.
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Chapman Electric Neutralizer Co.

Electrolyzer.
National Laundry Machinery Co.

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Craig Ridgway & Sons Co.
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N. Y. Revolving Portable Elevator Co.
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Employes' Time Recorders.
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Exhibits.
Textile Exhibitors' Ass'n, Inc.

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Farrel Foundry and Machine Co.
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Lamb Knitting Machine Mfg. Co.

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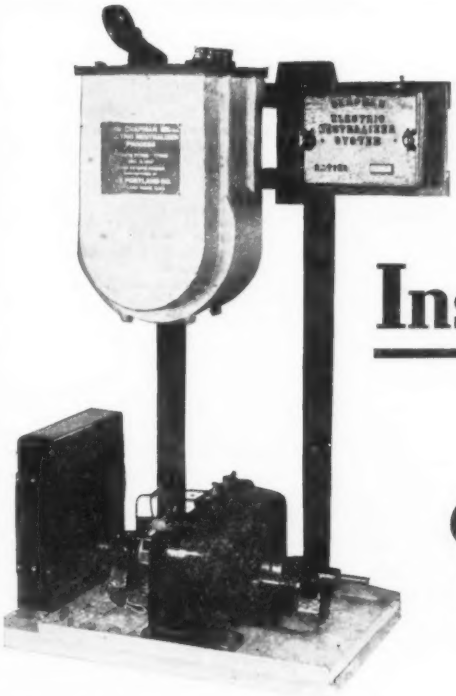

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Hunt, Rodney, Machine Co.
Hunter, Jas., Machine Co.
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Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Leigh & Butler.
Parks & Woolson Machine Co.
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Philadelphia Textile Machinery Co.
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Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Schwartz, L. H. A., & Co.
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Somerville Machine Works (Albert Birch, prop.)
Richards, Atkinson & Haserick.
Textile-Finishing Machinery Co.
Woonsocket Machine & Press Co.

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Marston, John P.
Mindlin & Rosenman.
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Trainor, The J. F., Company.
Whitman, William, & Co.

Flax, Hemp, Jute and Ramie.
Fawcett, Hughes.
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Mindlin & Rosenman.
Pfatz & Bauer.
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Ramie Agency.
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Harness Twine.
Fawcett, Hughes.
Moore, C., & Co.
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Hosiery and Knitting Yarns.
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Hyde, E. S.
Jenckes Spinning Co.
Littauer, Ludwig.
Mindlin & Rosenman.
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Lindsay, Thompson & Co., Ltd.
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Mercerized Yarns.
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American Silk Spinning Co.
Littauer, Ludwig.
Mindlin & oRsenman.
Mindlin & Rosenman.
Porter, T. J., & Sons.
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Mohair Yarns.
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Silk Yarns.
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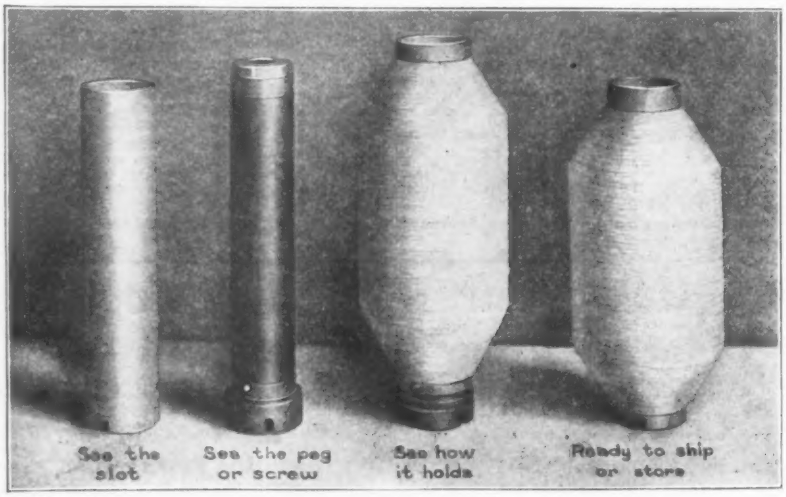

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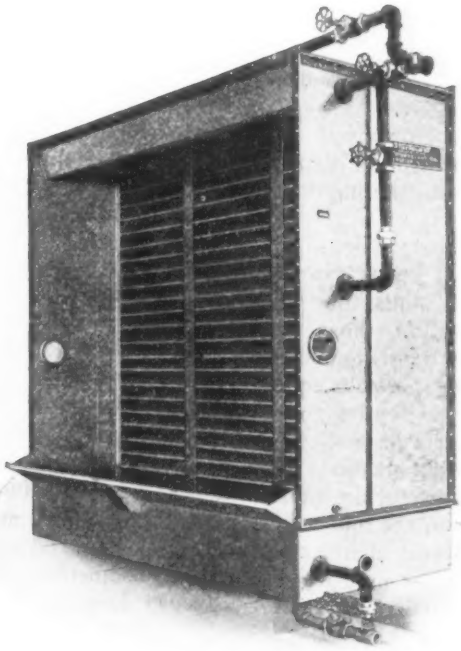

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Publisher's Page

A Well Tilled Field

Many words of commendation have reached us concerning the October Convention number of the Textile world Record,—praise for the reading contents, compliments on the appearance of the cover design and congratulations for the quantity and quality of the advertising pages.

There were over 150 pages of paid advertising, over 400 manufacturers or agents who sell to textile mills, showing in this manner their appreciation of the importance of keeping in touch with the important men in textile mills.

For it is known that the men who subscribe to the Textile World Record are the progressive men in textile mills, the men responsible for the production, those who must get the most out of their equipment, and want to have the best possible equipment for the manufacture of textile goods.

The Textile World Record's policy of specializing on the processes, methods and machinery of textile manufacturing causes it to be read by those men in the mill whom it is desirable to reach if you manufacture anything that will assist in or improve the process, method or machinery of textile manufacture.

The men who read the Textile World Record spend $250,000,000 a year for textile machinery, equipment and supplies, and they look to the Textile World Record's advertising section to tell them with whom they should spend it.

A Changing Audience

The time when "everybody will know about you" will never come. The audience of the business man is a constantly changing one. You have got to tell people who and where you are and what you are offering. And you have got to keep on telling.—Jerome P. Fleishman in The Baltimore Sun.

Have You Any Machinery to Sell?

Many Textile World Record subscribers doubtless have in their mills used machinery that has been replaced by newer and more modern equipment. This second-hand machinery would be good enough for use in many other mills—if the other mills knew where to get it.

Why not tell the Textile World Record subscribers, who are interested in the machinery end of the textile business, what you have for sale, through the "Wants, For Sale, Etc." pages?

For further details see fourth page following or address: Classified Advertising Department, Textile World Record, Boston, Mass.

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Its Value Appreciated

Lord & Nagle Company, Boston, Mass.

Gentlemen: The writer feels that he misses something if the Textile World Record does not arrive.

Niagara Falls Linen Company,
A. S. MacIntyre, Secretary.

An Up-to-the-Minute Journal

Sangerville Woolen Co.
Sangerville, Me., Sept. 25, 1913.

Lord & Nagle Co., Boston, Mass.

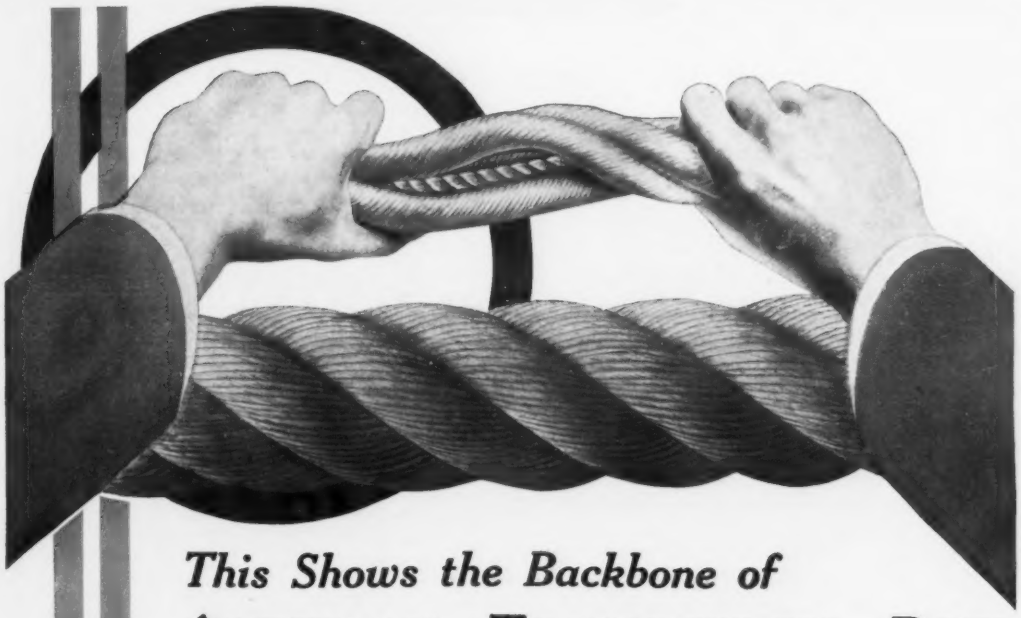
Gentlemen: I find the Textile World Record an up-to-the-minute journal and read it with much interest each month.

Wishing you the success you justly deserve, I remain,

J. Edwin Sykes.

Monthly Circulation Statement

Of this edition 6,275 copies are printed and all are needed.



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¶ We would be glad to send you a sample of the rope so that you might inspect this core for yourself.

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TARE BEAM for automatic deduction of tare, so that only the net weight is shown on the dial.

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*Alabama, Ozark. Preliminary work has been started on the site selected for the plant of the new Ozark Cotton Mill Company, recently organized with capital stock of $100,000, and a spur track is being built from the Atlantic Coast Line tracks to the mill site. A brick mill building, 300 by 100 feet, and a steam power house, 40 by 70 feet, of standard brick mill construction, are to be erected. The equipment will include 5,000 ring spindles for making 16s to 30s hosiery yarns. It is expected manufacturing will be started about June, 1914. This project was promoted by W. D. McNeill, who will supervise the construction of the buildings and equipping them, and will act as manager and buyer. J. D. Holman has been elected president; J. E. Z. Riley, vice-president; E. L. Dowling, secretary, and H. O. Dowling, treasurer.

*Canada, Quebec, Sherbrooke. Work is about 40 per cent. completed on three buildings for the new Canadian Connecticut Cotton Mills, Ltd., comprising a main mill 250 by 112 feet, two and three stories high; a storehouse, 100 by 100 feet; and a boiler house, 50 by 40 feet. The J. W. Bishop Co., Worcester, is doing the construction work. This is a new company with authorized capital stock of $1,750,000 which was organized by the Connecticut Mills Co. of Danielson, Conn., associated with Canadian interests, to manufacture tire fabrics and paper mill cotton dryer felts. H. L. Burrage, of Boston, is president; R. J. Caldwell, vice-president; Tracy S. Lewis, Beacon Falls, Conn., treasurer and buyer, and Obadiah Butler, formerly of New Bedford, secretary and manager. Mr. Butler is in charge at the plant.

North Carolina, Greenville. Stock has been subscribed for a new $100,000 cotton mill to be built in Greenville. Among the men interested are E. B. Higgs, G. B. W. Hadley, and W. H. Dail of the Dail Brick Works. W. H. Norris, formerly superintendent of the Kinston Cotton Mills at Kinston, N. C., also is interested and probably will be manager.

North Carolina, Landis. Preparations are being made to equip the Corriher Mills, built several years ago but never used. Four thousand spindles will be installed before the first of January for making 24s hosiery yarns. C. J. Deal, secretary and treasurer of the Linn Mills Company of Landis, is president of the Corriher Mills Co., L. A. Corriher is treasurer and G. O. Lipe, superintendent and buyer. Mr. Lipe is also superintendent of the Linn Mills Company.

*Alabama, Birmingham. The Avondale Mills are putting in 20,000 spindles and a number of cards to replace old machinery. About $50,000 is being expended on this improvement. The new Eva Jane Mill at Sylacauga is practically completed and will begin operations in December.

Alabama, Florence. The Ashcraft Cotton Mills will manufacture fancy cotton dress goods for converters in addition to their line of brown sheetings. New twisters are to be installed for making novelty cotton yarns. 6,240 ring spindles and 200 looms are operated.

Connecticut, East Killingly. The plant of the International Cotton Mfg. Company is running night and day. A new bleachery and a new storehouse have been constructed recently. The cards are now being reclothed and repaired to bring them up to a higher point of efficiency in production and it is reported 8 new cards are to be added and some other new machinery installed.

Connecticut, Versailles. Improvements are in progress at the plant of the Totokett Mfg. Company, including the installation of new looms.

*Georgia, Lagrange. The addition to the Dixie Cotton Mills, which has been under construction during the past few months, is completed. This improvement represents an investment of about $100,000.

Georgia, Dalton. Two twisters of 288 spindles have been ordered by the Elk Cotton Mills to make heavy ply yarns. There will be no further changes.

Georgia, Hartwell. It is reported that the Hartwell Mills contemplate making an enlargement. This concern is in excellent financial shape and the regular quarterly dividend was recently declared. There were reports earlier in the year that the capacity of the plant would be doubled. Coarse and fine sheetings are manufactured on 8,000 spindles and 200 looms.

Georgia, La Grange. Two additional spinning frames are being installed in the Unity Spinning Mill.

Georgia, Summerville. The management of the Summerville Cotton Mills plans to double the capacity of the plant within the next few months. A dividend of eight per cent. was recently declared and a large addition made to the surplus. This plant is equipped with 5,000 spindles and 130 looms, manufacturing cotton duck.

Georgia, Tallapoosa. Five spinning frames and two new twisters have been ordered by the Tallapoosa Mills, Inc. Chain warps and skeins are manufactured.

Kentucky, Louisville. An increase in the finishing department of the Puritan Cordage Mills, which will give about 25 per cent. larger output, is being made. New machinery has been ordered and is being shipped to Louisville. This concern manufactures cotton sash cord, rope, and clothes lines and it was noted several months ago that an increase would be made.

*Massachusetts, Adams. The large new weave shed at the Renfrew Mfg. Company's jacquard mill which has been in the course of construction for some months past is completed and is in readiness for the installation of new machinery. Work is going forward on the new yarn storehouse and new bleach house.

North Carolina, Charlotte. One thousand spindles are to be added to the equipment of the Fidelity Mfg. Company, manufacturers of damasks and cotton yarns, with present equipment of 10,000 ring spindles, 4,000 twisting spindles and 50 wide looms.

Mill News continued on Page 169

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4-10

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Cotton Mill Superintendent Wanted by a well equipped and well located plant in the North; should be a good manager and all-round manufacturer; well up in carding, spinning and especially well versed in fancy weaving; this mill offers a good future for a capable man who, in answering this should furnish references and full information regarding his past executive record, age, nativity, married or single, etc., all of which will be held in strict confidence; $3,600 to start, with a good chance for more. Address, Empire, care Guenther Adv. Agency, 115 Broadway, New York.

Wanted—Assistant Superintendent

In large Worsted Yarn Mill. Applicant must be an intelligent young man, one who thoroughly understands the manufacturing of Knitted Yarns from the wool to the finished product. Address W. & W. Textile World Record, Boston, Mass.

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Manager or superintendent of hosiery mill; has worked on seamless and full fashioned hosiery; silk, cotton and wool for men, women and children; familiar with Banner and Acme knitters; Wildman, Scott & Williams ribbers and Hepworth and Beattie loopers; 43 years of age, married; good reference.
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Assistant Superintendent in woolen mill; might consider a very good position as boss finisher; has worked on all kinds of woolens; familiar with all kinds of modern woolen machinery; 44 years of age, married; will not go to Pa., N. J., West, South or to Canada; good reference.
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Second Hand of cotton spinning; has worked on bed spreads, etc.; familiar with all makes of spinning machinery; 22 years of age; good reference.
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Overseer or superintendent in a knitting mill; has worked on astrachans, eiderdowns, stockinets, jersey cloth, underwear and hosiery; familiar with the Crane, Campbell & Clute, Tompkins, circular and spring needle knitting machines; understands adjusting and fixing of automatic seamless knitters; 49 years of age, married; good reference.
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Overseer of Finishing in woolen mill; has worked on all grades of woolen, worsted and cotton worsted goods; familiar with all makes of machinery; 32 years of age, married; will not go South or to Canada; good reference.
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Overseer of Spinning in woolen mill; has worked on kerseys, meltons, overcoatings of all kinds, dress goods, cotton mixes and silk mixes; familiar with Davis & Furber machines; 49 years of age, married; will not go to Me., Vt., Pa., West, South or to Canada; good reference.
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Overseer of Bleaching, mercerizing or aniline black dyer in cotton mill; has worked on all kinds of cotton piece goods, lime and caustic bleaching, also colors and wash dress goods; familiar with all kinds of bleaching, mercerizing and dyeing machinery; 40 years of age; good reference.
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Overseer of Dyeing in woolen mill; has worked on wool, shoddies, silk, cotton and union goods; worsted yarns, slubbing, pieces, felts, etc., can run indigo blue vat, if desired; 50 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
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Overseer of Woolen Spinning; has worked on anything from 1/2 run to 10 run; has made nub yarns from 3/4 to 3 1/4 run and silk noils; familiar with Davis & Furber machines; 30 years of age, married; prefers Maine; good reference.
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Overseer of Carding in cotton mill, or superintendent of yarn mill; has worked on all kinds of yarns, combed and carded; white, colored, Egyptian, Sea Island and American cotton; fine cloth and all kinds of waste; familiar with the Platt, Whitin, Saco, Lowell, Howard & Bullough, Woonsocket and Whitin combers; 30 years of age, married.
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Second Hand of Dyeing in cotton or knitting mill; has worked on cotton velvets, corduroys, knit goods, eiderdowns, stockinets, worsted and cotton jerseys, all grades of yarn and all kinds of undergarments; familiar with jigs, open piece dye tubs and yarn kettles; 27 years of age; will not go West, South or to Canada; good reference.
6035, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on all classes of goods; familiar with American makes of machinery; 37 years of age, married; will not go to Me., N. H., South or to Canada; good reference.
3503, Textile World Record, Boston, Mass.

Overseer of Cloth Room in cotton mill; has worked on colored goods, fancy ginghams, whipcords, denims, tickings, coverts and suitings; familiar with Curtis & Marble, David Gessner, Holyoke Machine Co., and Parks & Woolson machines; 22 years of age; good reference.
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Overseer of Dressing and spooling in woolen mill; has worked on all classes of goods, wet and dry; familiar with Davis & Furber and Cleveland machines; 40 years of age; good reference.
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Fixer in Hosiery Mill; has worked on cotton, wool, worsted and silk hosiery; familiar with Acme, Banner, and several makes of rib machines; 37 years of age, married; will only go to Mass., or R. I.; good reference.
6036, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on fancy worsteds and woolen goods; familiar with Crompton & Knowles looms; 40 years of age, married; will not go to Me., or South; good reference.
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Overseer of Cutting in knitting mill; has worked on ladies' and children's fine grade underwear, sweaters and jerseys, worsted and plaited; would also consider position of overseer of finishing; 36 years of age, married; good reference.
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Superintendent or agent of a woolen mill; has worked on novelty dress goods, low and high grade woolen and worsted men's wear; 35 years of age, married; good reference.
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Overseer of Weaving in woolen mill; has worked on worsteds, woolens and cotton worsteds; familiar with Crompton & Knowles and Crompton looms; 27 years of age, married; will not go West, South or to Canada; good reference.
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Overseer of Weaving in woolen mill; has worked on fine fancy worsteds, cassimeres, piece dyes, ladies' dress goods, satinets, chinchillas, beavers and woolen goods; familiar with Knowles, Crompton & Thayer fancy and cam looms; Crompton & Thayer automatic, also Knowles automatic looms; 46 years of age, married; will go to Mass., R. I., Conn., or N. J.; good reference.
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Overseer of Dressing, spooling, twisting or skein winding in woolen mill; has worked on all kinds of woolens and dress goods; familiar with Davis & Furber and Cleveland machines; 46 years of age, married; will not go West, South or to Canada; good reference.
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Overseer of Finishing in woolen mill; has worked on all grades of woolens and worsteds; familiar with all kinds of machinery; 38 years of age, married; good reference; will not go to Me., Pa., N. Y., N. J., West, South or to Canada.
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Overseer of Weaving in cotton mill; has worked on sateens, sheetings, shirtings, twills, drills, duck of all kinds, checks, plaids, ginghams, flannels, colored cotton goods; white, plain and fancy cotton goods; fine work as well as coarse; familiar with all makes of machinery; 47 years of age, married; good reference.
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Jacquard and dobby designer in cotton mill; has worked on all cotton fancies, jacquards a specialty, cloth analysis, fabric structure and manufacturing from yarn to cloth; has designed for quills, tapestries, linens, damasks, brocades, figured shirtings, and all fancy woven cloth; familiar with English makes of machinery; 30 years of age; good reference.
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Overseer of Ring Spinning, carding, combing, or superintendent of a cotton mill; has worked on carded and combed work hosiery and warp yarns, single and ply yarns; yarns from 4s to 90s, colored work, blankets, flannels, yarns of all kinds of weaving; familiar with all makes of machinery, Whitin and Plat combers; 48 years of age, married; good reference.
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Overseer of Carding in woolen mill; would also consider position as superintendent of small mill; has worked on all kinds of goods; familiar with all makes of cards; 44 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
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Overseer of Woolen Spinning or would consider position as second hand; has worked on wool shoddy, silk and cotton mixes, and all kinds of stock from one-half to nine run; familiar with Davis & Furber and Johnson & Bassett mules; 39 years of age; will not go South; good reference.
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Overseer of Cotton Dyeing on the roll; has worked on all kinds of cotton cloth on the roll and knit goods; familiar with the Klauder-Weldon and Utica Novelty dyeing machines; will not go to R. I., Conn., Me., N. H., Vt., N. J., or South; 39 years of age, married; good reference.
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Overseer of Dyeing in woolen mill, or second hand in large plant; has worked on woolen, worsted and union piece dyes, raw stock, worsted yarn and cotton yarn; 34 years of age, married; good reference.
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Overseer of Finishing or starching in bleachery or print works; has worked on all kinds of back filled work, shirtings, percales, poplins, cambrics, lawns, fancy muslins, nainsooks, napped flannels, print goods of all kinds, also dyed goods; familiar with all makes of machinery; 48 years of age, married; will not go West or South; good reference.
6051, Textile World Record, Boston, Mass.

Overseer of Knitting or fixer in hosiery mill; has worked on silk, all kinds of cotton, wool and worsted hosiery; familiar with Acme, Banner, Standard and different makes of rib machines and loopers; 25 years of age; will not go West or South; good reference.
6052, Textile World Record, Boston, Mass.

Second Hand in dressing department of woolen mill, or would consider position as boss dresser in small mill; has worked on fancy woolens, cassimeres, worsted men's wear and dress goods; familiar with Davis & Furber machines; 29 years of age, married; will not go to Pa., N. J., West, South or to Canada; good reference.
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Overseer of Cotton Card Room or second hand; has worked on blankets, flannelette yarns, all warp and filling yarns up to 40s; familiar with Platt, Asa Lees, Hetherington and Lowell machines; 30 years of age; will not go West, South or to Canada; good reference.
6054, Textile World Record, Boston, Mass.

Superintendent and designer in woolen mill; has worked on cotton and wool warp goods, cassimeres, meltons, convict stripes, on both broad and narrow looms; familiar with Molton cards and mules; Johnson & Bassett mules and Crompton & Knowles looms; 35 years of age, married; will not go West; good reference.
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Worked on men's and ladies' high grade sweaters. Familiar with German and American hand and power flat knitting machines. Will go to Canada. Address, 'Knitting," Textile World Record, Boston, Mass.

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A German, 28 years old, strictly temperate, wants position as Manager or Assistant. Have had experience in all kinds of piece dyes, also raw stock, wool and cotton. Willing to go anywhere at any time. Best of references. "German," care Textile World Record, Boston, Mass.

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Overseer of Dyeing in woolen mill; has worked on woolen and worsted suitings, half woolens, wool and shoddy mixes; prefers low grade stock; familiar with the Klauder-Weldon machines; 24 years of age; will not go to Mass., Conn., Me., N. H., Vt., N. J., or to Canada; good reference.
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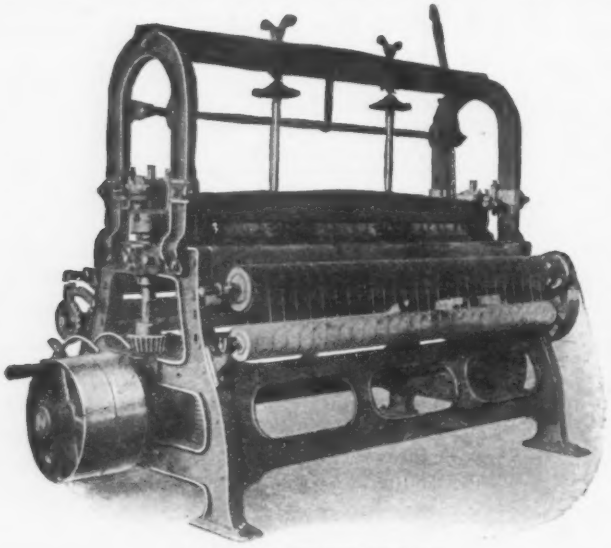
Overseer of Spinning, twisting, reeling, winding and warping in worsted mill; has worked on English mohair, botany, alpaca, cap, fly and ring spinning; also twisting; tubes, filling and double headed spools; familiar with all makes of worsted machinery; 37 years of age, married; will not go to Me., N. J., West or to Canada; good reference.
5974, Textile World Record, Boston, Mass.

CHINCHILLA MACHINE



ALSO MANUFACTURERS OF
Tentering and Drying Machines, Crabbing Machines, Cloth Washers, Whipping Machines, Etc.

For producing
the following finishes:

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Petersham
Ratine
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Manufactured by
D. R. Kenyon & Son
Raritan, N. J.

F. P. SHELDON, Pres. J. B. BARRETT, Agent H. EARLE KIMBALL, Treas.

Franklin Process Co.

291 Promenade St. (5 minutes from Union Station) **Providence, R. I.**

MANUFACTURERS OF

Cotton and Worsted Yarn Dyeing Machines

FRANKLIN DYED YARNS
STANDARD OF FASTNESS

FPCo

Job Dyers of Cotton and Worsted Yarns
On Packages

Our Laboratories and Technical Men
at your service

Massachusetts, Farnumsville. Men in the employ of S. Slater & Sons, Inc., are finishing the interior of the new mill office building. Improvements have been in progress at this plant continuously for several months.

Massachusetts, Franklin. The Franklin Yarn Company, manufacturers of woolen and merino yarns, will build an addition 110 feet long and 70 feet wide, 1 story high, in the rear of the present mill. The addition will be of brick construction and when completed will be used for a card room, a rearrangement of equipment taking place. Construction work will be done by the Franklin Construction Company and it is hoped that the addition will be completed this year.

New York, Jamestown. A fire sprinkler system has been installed in the plant of the Acme Worsted Mills, manufacturers of dress goods and suitings.

Pennsylvania, Philadelphia. Local builders are estimating on plans and specifications for a four-story brick addition to the large factory buildings owned and occupied by O'Neill Bros., Inc., at Howard and Oxford Sts., where they are manufacturing cotton and woolen waste, hair and noils, with equipment of 16 waste machines.

Pennsylvania, Philadelphia. Local builders have recently secured a contract for the erection of a five-story addition to the mill at 2nd St. and Allegheny Ave., owned by Thomas Boggs, in which he conducts a plant for the manufacture of carpets and also leases space for manufacturing purposes. The cost of the operation is estimated at $25,000.

Rhode Island, Providence. In regard to rumors that the Cleveland Worsted Mills Company will erect a new mill in Providence as an addition to the Langford Worsted Mills, general manager George H. Hodgson states that while it is a fact that the building of a new mill is being considered they have not made up their minds as yet whether this development will be carried out. Property adjoining the Langford plant has been purchased and more property is being negotiated for. The Langford Worsted Mills are running night and day indefinitely.

Pennsylvania, Shamokin. A large manufacturing concern for which the Perfect Silk Throwing Company of this place does throwing, may establish a plant here in conjunction with the Perfect Silk Throwing Company if the necessary financial and building arrangements can be made. The name of the concern interested has not been given out, but it is reported to be a company which has several mills and operates several hundred looms. Shamokin citizens are asked to raise from $25,000 to $30,000 to be expended in putting up a mill.

*Pennsylvania, Williamsport. Changes are to be made in the plant of the Morrison Silk Company, recently organized to succeed Thomas Morrison & Son, manufacturers of broad dress silks with 40 looms.

*Rhode Island, Central Falls. In connection with the installation of 20 additional broad silk looms at the Bengal Silk Mills, 114 Hadwin St., additional winding and warping equipment is being set up.

New Jersey, Paterson. The Passaic Falls Throwing Company, a concern organized early in the year to do a business of commission throwing of organzine and tram, has begun operations in the Cooke Mill. Richard Rossiter is treasurer and P. Holley, manager.

*New York, Theresa. The Theresa Silk Mill is to be started up at once by the Lincoln Silk Company of Paterson, N. J., and the Paterson plant of that concern will be discontinued. Tie silks and dress silks will be manufactured on 70 looms. The property is to be occupied under a lease with option of purchase and if conditions prove satisfactory it is expected additional looms will be installed.

Pennsylvania, Philadelphia. The American Textile Works, who removed their plant from Newtown, Pa., to 821 Cherry St., where larger quarters were secured, are again preparing to remove with a view of further enlarging the plant. They are manufacturing imitation furs and converting and finishing plushes and velvets. After their removal about November 15 they will also install an equipment for printing pile fabrics and dress goods of all kinds.

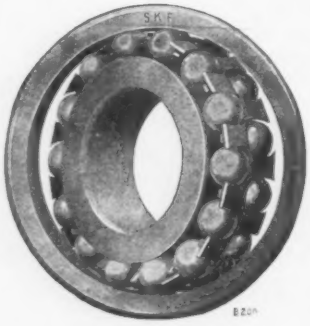
Pennsylvania, Philadelphia. Carney & McLaughlin, recently reported by us as removing from 143 N. 3rd St. to 1021-23 Callowhill St., have increased their equipment to 34 braiders and installed two new trimming knitters. They are manufacturing braids, cords, girdles and dress and cloak trimmings, which they sell direct.

Pennsylvania, Philadelphia. A notice is being sent out to the trade announcing a change in the style of Watt & Beck to the Wear-Best Knitting Company. The plant has been removed from 2709 N. Palethorp St. to Jasper St., below Orleans St., where in a modern building with an up-to-date equipment they will continue to manufacture fine hosiery.

Pennsylvania, Carlisle. Plans for the new mill to be established here by the Interwoven Mills, Inc., of New Brunswick, N. J. and Martinsburg, W. Va., call for a building 200 by 150 feet. Bids for construction work will be invited in about two weeks, according to report.

New York, Auburn. Manufacturing will begin in the new branch plant of the Firth Carpet Company at Firthcliffe, N. Y., on November 1. The machinery equipment is being moved from Firthcliffe. The manufacturing property occupied in Auburn is a 1-story building with four rooms, one of which is to be used for weaving, another for a dye house, a third for a boiler house, and the fourth for machine shop and repair department. This branch will represent an investment of about $70,000 and will manufacture seamless Scotch, chenille rugs and Axminster rugs, giving employment to 120 hands. Electric power will be used.

You May Be Paying For More Power Than You Need



In a New England Worsted Mill two shoddy pickers required 14 HP each under full duty. This was not abnormal. The main cylinder bearings were removed and replaced with

S K F
Self-Aligning Ball Bearings

Then under exactly similar duty these two machines required but 4.92 HP each. Here is a saving of 65% in power consumed. This proved that S K F Self-Aligning Ball Bearings would pay for themselves in 30 days and a net saving in money, to the manufacturer, of $350.00 per machine annually.

This saving was for power only.

There are many other savings effected by the use of S K F Ball Bearings.
Learn more about this SELF-ALIGNING bearing with TWO ROWS OF BALLS.

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50 CHURCH STREET, NEW YORK

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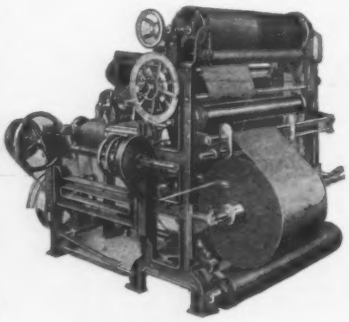
MACHINES FOR THREE METHODS

BAIRD STENCIL **KAUMAGRAPH TRANSFER** **DIE PRINTING**

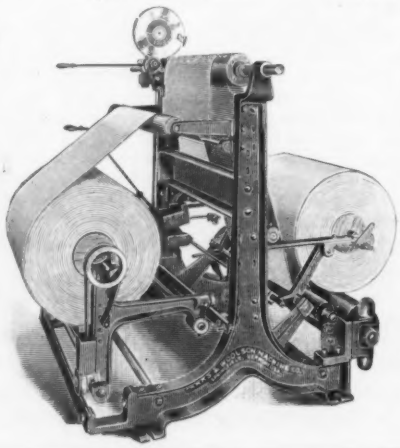
ALL PROTECTED BY MANY PATENTS

Below is our Model AR for Trademarking and Batching all fabrics
Rapid Clean Legible

The cut beneath shows our Model E NV Fabric Machine for Trademarking, Yardnumbering, Measuring, Doubling and Winding all kinds of cottons



PARKS & WOOLSON MACHINE CO
SPRINGFIELD VERMONT



Alabama, Jacksonville. The weaving machinery has been taken out of the Verline Mill and the property will not be used again as a weaving plant. It is now owned by the Profile Cotton Mills, who intend to install new equipment and put the plant into operation as early as convenient, probably making cotton yarns. The Verline Mills had equipment of 200 looms operated on Turkish towels and fancy cotton weaves up to about a year ago.

*Arkansas, Little Rock. George R. Brown, head of the Little Rock Board of Trade, is quoted as saying that plans are under way to build mills in Arkansas to manufacture cotton goods. For the past year there has been considerable agitation in Little Rock to organize cotton manufacturing companies but so far as is known nothing definite has been done.

Canada, Ontario, Galt. The style of Narrow Fabrics, Ltd., a new concern which began manufacturing here several months ago, has been changed to the Narrow Fabric Weaving & Dyeing, Ltd. Cotton and silk labels, shoe straps, etc., are manufactured, dyed, and finished.

Connecticut, Jewett City. The business of the W. A. Slater Mills has been incorporated under the laws of Massachusetts with capital stock of $250,000, consisting of 2,500 shares of common stock. Combed and carded cotton yarns are manufactured and a specialty is made of thread yarns. Frederick D. Ballou is superintendent. There will be no changes in the plant.

Connecticut, Mystic. A textile manufacturer is looking for quarters in Mystic and would like to rent the upper part of the Royal Linen Mills.

Connecticut, Norwich. The plant at 76 Mechanic St., formerly operated by Rogers, Thompson Givernaud Company is being operated under the name of the West Side Silk Mill by Schwarzenbach, Huber Company. M. L. Bergstresser, who had charge of the plant for Rogers, Thompson, Givernaud Company, continues as superintendent. The buying for this mill is done in West Hoboken, N. J.

Connecticut, Putnam. The Waterman Worsted Company is working on a day and night schedule and is advertising for additional help. Piece dye and woven colored men's wear is manufactured on 32 looms.

*Connecticut, Rockville. Following the purchase by Frederick Swindells of the interests held by Arthur T. Bissell in the Rock Mfg. Company, Mr. Swindells has been elected treasurer.

*Delaware, Wilmington. The building of the projected 5-story addition to the plant of Joseph Bancroft & Sons Company is held up and no new construction is planned by this company for the immediate future. Plans for this addition were completed several months ago and were submitted to contractors for bids.

Georgia, Macon. The Macon Woolen Mills have been incorporated with capital stock of $50,000 to manufacture woolen goods. The incorporators are J. D. Renfroe, Mrs. J. D. Renfroe and Oliver C. Hancock.

Georgia, Newborn. W. Ezra Johnson is organizing a company for the manufacture of cotton novelties to be used in advertising work, etc.

Georgia, Springfield. The Chamber of Commerce is inviting investigation of the merits of Springfield as a location for textile plants. The Chamber intends to push the proposition to a successful conclusion and is ready to make or receive propositions for the construction of a mill.

Illinois, East St. Louis. The Commercial Club of East St. Louis is negotiating with a Southern cotton mill for the location of a plant here.

*Illinois, Quincy. The proposed cotton mill project is considered practically hopeless by J. Henry Bastert, president of the local Chamber of Commerce. It has proved impossible to dispose of the bond issues.

Canada, Ontario, Owen Sound. H. C. Banks, a manufacturer of sweater coats and knitted novelties, is installing a number of hosiery machines and will add to his products a line of heavy worsted half hose.

*Connecticut, Bristol. The 2-story brick addition to the plant of the Bristol Mfg. Co., which has been under construction for the past two or three months, is nearing completion. This enlargement is 50 by 90 feet and will increase the output of spring-needle ribbed union suits and give a larger finishing room.

*Illinois, Chicago. Arrangements for building the projected new mill for the Child's Welfare Garment Company, reported several months ago, have not been completed. They expect to go ahead, however, in the near future. The concern is located at 2445 Lincoln Ave., and manufactures infants' knit goods. A. W. Kindt is president; R. A. Hoefer, vice-president and manager, and Charles B. Kindt, secretary and treasurer.

Maryland, Emmitsburg. It is reported the management of the Union Mfg. Company of Fredericksburg, Md., contemplates installing additional machinery in the branch at Emmitsburg.

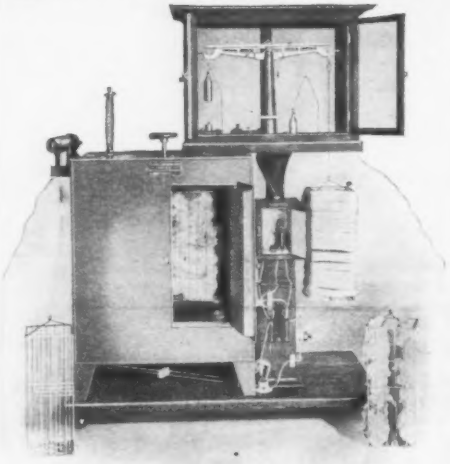
*Massachusetts, Framingham. The new building erected for the knit underwear plant of Brown, Durrell Company has been completed and is being used for bleaching purposes and for storage and boxing. This plant now contains 36 knitting and 45 sewing machines operated on women's and children's vests and suits, with complete dyeing, bleaching and finishing departments. Steam and electric power are used. A. F. Abbott is manager and buyer.

*North Carolina, Greensboro. About one-fourth of the proposed $1,125,000 development at the Revolution Cotton Mills will be started at once and work will be continued until the capacity is increased by 1,200 looms and preparatory machinery.

North Carolina, Haw River. The enlargements being made to the equipment of the Holt-Granite Mfg. Company include six new cards and twelve deliveries of drawing. Ginghams, outing flannels and similar goods are manufactured on present equipment of 21,000 ring spindles and 638 narrow looms. They are equipped to bleach, dye and finish.

Buying or Selling
You Need Our

Electric Conditioning Oven



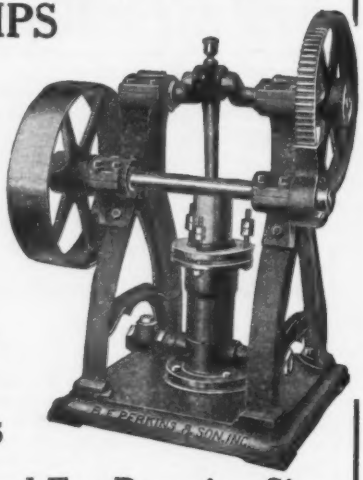
It is to your interest and profit to know exactly what you are buying, making or selling. The value, weight, quality, size, strength of your raw materials, yarns and fabrics are seriously changed by moisture.

Our Electric Oven offers you a simple, inexpensive and ever-ready means of determining the moisture and its effect on the products that you handle and manufacture.

Emerson Apparatus Co.
251 Causeway St., Boston, Mass.

USE PERKINS SIZE PUMPS

For WARP SIZING in Mills and FINISHING WORKS



Designed For Pumping Size

their simple construction gives a direct free passage that reduces the resistance in handling viscous liquids.

There are no valve chambers, no intricate internal passages. The valves are plain swing checks attached by nipples at the base of the cylinder. They

SAVE POWER AND TIME

Because their operation is correspondingly easy and regular—preventing waste and delay.

Arranged with gear reduction, as shown above, or with pulley on crank shaft for direct drive. Pulley can be placed on either suction or discharge side—or if desired valves can be at right angles to crank shaft. Capacity 88½ cu. in. each stroke. Can be regulated by changing speed. All parts interchangeable.

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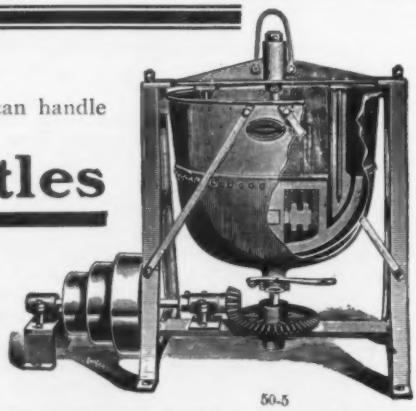
B. F. PERKINS & SON, Inc.
HOLYOKE, MASS.

Uniform Dyes

are possible only with proper dye kettles. You can handle your colors satisfactorily with

Badger Dye Kettles



because they are built right. If your dye kettles aren't just what you want, we are prepared to furnish kettles made according to our designs or we will build them according to yours. They will be well built too.

Let us send you our booklet on

BADGER COPPER KETTLES

Don't Forget Badger Copper Expansion Joints for your power plant

50-5

E. B. Badger & Sons Co., 73 Pitts Street, Boston, Mass.

Pennsylvania, Philadelphia. W. E. S. Dyer, an engineer with offices in the Land Title Bldg., is preparing plans for an addition to the plant of Baxter, Kelly & Faust, Inc., Tioga and C Sts., manufacturers of cotton plushes on 45 looms. The new mill will be 4 stories high, 60 by 195 feet, of slow-burning brick construction and will be connected with the present mill by a bridge. It will be equipped with sprinkler service, elevators and all modern appliances. Electric power will be used. The plans will be ready for contractors within the next three weeks.

Pennsylvania, Philadelphia. The Cheltenham Towel Mills, Mascher and York Sts., are making additions to the equipment, including 16 new looms, with a view of increasing the output. High grade Turkish towels are manufactured. The product is sold through the F. Tausend Commission Company, N. Y.

Rhode Island, Hope Valley. Artesian wells are being driven on the property of Joseph J. Taylor & Company. The concern is running to full capacity on orders in all departments.

Rhode Island, Warren. New automatic looms are being installed by the Warren Mfg. Co., manufacturers of muslins, sateens, etc., and cotton yarns.

*South Carolina, Batesville. Plans have not been completed as yet for the proposed weaving department to be established by the Batesville Mfg. Company.

South Carolina, Fort Mill. A $100,000 addition is to be built by the Fort Mill Mfg. Company and plans are being made by a Greenville architect. The new building will be 125 by 200 feet and will be equipped with 600 automatic looms for weaving sheetings. Electric power will be used. In connection with this enlargement a general rearrangement of equipment will be made including the taking out of the old looms in mill No. 1 and replacing them with looms now running in mill No. 2. New carding and spinning equipment will be installed in the present weave room of mill No. 2 and will supply the looms of the new sheeting department.

*South Carolina, Greenwood. The addition to the equipment of the Panola Cotton Mills is to include 5,300 spindles, 12 deliveries of drawing and other preparatory machinery, and 125 automatic looms. The present mill has sufficient space for this increase in equipment. A number of tenement houses are to be constructed for the new operatives that will be required. About $175,000 is to be expended for this increase.

South Carolina, Piedmont. The new cloth room of the Piedmont Mfg. Company is completed. Other extensive improvements are being made, including the replacing of some of the old equipment with new machinery and the installation of a 1200 h. p. steam turbine, alternating current generators, and 37 motors ranging from 3 h. p. to 50 h. p. for distributing power throughout the mills. The electrical equipment has been ordered from the General Electric Co.

*South Carolina, Yorkville. The old York Cotton Mills, bought by Cannon & Company several months ago as noted, are being enlarged and new machinery is being installed which will practically renew the equipment. The mill is being changed from steam to electric power and orders have been placed for 31 General Electric motors ranging from 5 h. p. to 100 h. p., with switchboard and accessories.

*North Carolina, Fayetteville. The office of the Cape Fear Cotton Mills, a new concern organized to take over and start up the plant of the Lakeview Mfg. Company, is at St. Pauls, N. C. A. R. McEachern, president of the St. Pauls Cotton Mill Company of St. Pauls, heads the new concern. Walter McDonald has been engaged as superintendent. The plant is receiving a thorough overhauling and repairing and the tenement houses for operatives are being put in good repair.

*California, Long Beach. It is expected the new California Woolen Mfg. Company will begin operations December 1. Good progress is being made on construction work. The machinery formerly operated at Topeka, Kansas, by the Topeka Woolen Mfg. Company, including three sets of cards and 11 broad looms, will be installed and lines of flannels, blankets and cassimeres will be manufactured, dyed and finished. Electric power will be used. This concern was incorporated several months ago with capital stock of $200,000. S. J. Kent is president, R. Z. McCourt, treasurer, and J. F. McAfee, superintendent and buyer. Mr. McAfee was at one time superintendent of the Topeka Woolen Mfg. Company. The plant is at what is known as Inner Harbor Tract. The office is corner of First and Locust Sts.

Pennsylvania, Parkers Landing. A. E. & J. O. Conn, who operated the Richland Woolen Mills at Emlenton, which were destroyed by fire in September, have with the assistance of prominent citizens of Parker's Landing, organized a new concern under the name of the Parker Woolen Mills, to manufacture woolen yarns, 6 to 26 cut, in a new mill at Parkers Landing. Construction is under way. Manufacturing will be started about January 1 with one set of cards, picking and spinning machinery, and a gas engine. The capital stock of the new company is $10,000. Lester Fleming is president; Alf. A. Schenck, 1st vice-president; T. A. Kerr, 2nd vice-president; J. O. Conn, secretary; and Arthur E. Conn, treasurer and manager. The buying is done by A. E. and J. O. Conn.

Kentucky, Mayfield. Improvements are to be made in the power department of the Mayfield Woolen Mills and it is reported that a generator and 30 motors will be installed within the next 60 days.

Massachusetts, Boston. Plans are being made by the Middlebrook Wool Combing Co., Inc., of East Boston, to double the capacity of their plant, making the equipment 20 combs, 24 cards and complementary machinery. The building occupied contains ample space for this increase and for further increases up to a 40-comb plant.

Cutting Dies

— FOR —

"Straight Line" Cloth Analysis

And Determining Average Yarn Number of Fabrics

The "straight line" method of cloth analysis has been used by us for years. It is equally well adapted for cotton, woolen, worsted or linen fabrics.

The value of this method is conclusively demonstrated by the fact that the U. S. Treasury Department has recommended it to Customs Collectors and Appraisers as the simplest method of determining the average yarn number on which the tariff on cotton cloth is based.

The sample having an area of 1/300th square yard (1.32 square inches) can be cut in any form desired. The rectangular die shown in the illustration is the most convenient.

For the convenience of the trade we have arranged to supply dies like this at **$5.00** each, express paid. This includes a lead cutting sheet together with instructions for use. Remittance should accompany order.

Having cut a sample of cloth with this die and weighed it on an ordinary grain scale, calculations to obtain the following information can be quickly made for cotton, woolen, worsted or linen:

Average number of yarn: woolen runs or cut; worsted, cotton or linen number.
Number of each kind of yarn.
Grains per square yard.
Ounces per running yard.
Ounces per square yard.
Running yards per pound.
Square yards per pound.
Number of yarn when spun.

This method of calculation is invaluable for analyzing fabrics that are to be duplicated or imitated.

The United States appraisers and custom house officers will use a system based on similar data, and these calculations will be in constant use by importers who wish the know what the duty will be on cotton cloths imported, and by domestic cotton manufacturers who wish to ascertain what the duty will be on competing foreign goods similar to goods of their own manufacture. We do not supply the grain scales, but these may be bought of any supply house.

Textile World Record

LORD & NAGLE CO.

144 Congress Street, Boston

*Canada, Ontario, Cobourg. John Dick, Ltd., manufacturers of woolen and worsted goods, control the new Cobourg Dyeing Co., Ltd., recently reported incorporated with authorized capital stock of $190,000. Organization has been effected with Thomas Whiteley, Bradford, president; David C. Dick, Cobourg, vice-president and managing director, and W. M. Hilliard, Cobourg, secretary and treasurer. They have purchased land and buildings in Cobourg upon which extensive alterations will be made, starting at once. Contract will be placed for finishing machinery, including a cloth dryer, hydraulic presses, shears, singeing machines, extractors, dye kettles, crabs, etc. It is expected that operations will be started on or about May 1, 1914. At the outset they will handle only piece dyed woolens, worsteds, broadcloths, etc., and will have a capacity of about 150 pieces a day. Water power and electric power will be used.

Canada, Quebec, Montreal. The International Braid Co. of Canada, Ltd., incorporated in August with capital stock of $50,000, as noted, is a branch of the International Braid Co., which has plants at East Braintree and Attleboro, Mass., and Providence, R. I. R. B. Hamilton recently left the plant at East Braintree to establish the new Canadian plant at 373 Aqueduct St., Montreal. Boot and shoe laces and corset laces will be manufactured.

*Illinois, Chicago. A dyeing, bleaching and finishing plant has been established at 1800 Ballou St. under the name of the Sterling Dye Works by Arthur L. Stuart and Fred Taylor. Mr. Stuart is manager and buyer and Mr. Taylor is the outside man. They are dyeing velvet, plush, and everything in a millinery line, making a specialty at present of bleached straw goods. Steam and electric power are used.

Iowa, Davenport. The De Luxe Textile Company, 1505 Rockingham Row, has resumed manufacturing with increased facilities. The plant was shut down some time ago while changes were being made. Laces are manufactured on eight looms, the product being dyed, bleached and finished.

Kentucky, Louisville. The Ohio Falls Dye & Finishing Works have installed an automatic sprinkler system in their plant.

Massachusetts, Lowell. An addition is being built to one of the mills of the Lowell Bleachery, at an established cost of $20,000. The foundation is concrete and the building of brick.

Minnesota, Duluth. Excavation for the foundation and basement for the Western Spinning Company's new plant at 63rd Ave., West, and Grand Ave., was begun this week. The plant will occupy a space 146 feet square and will consist of two buildings, one of which will be 146 by 86 feet, 3 stories high, and the other 146 by 60 feet, 1 story high. Reinforced concrete construction will be used. It is proposed to have the new plant ready for use early this winter and the contract for the superstructure will be let early this month.

*Minnesota, St. Paul. The general contract has been awarded to the F. J. Romer Construction Co., of St. Paul, for the construction of the first section of the grass warehouse for the Crex Carpet Company. This building is to be located on the south side of Como Ave., near the St. Paul and Minneapolis city line, and is the beginning of the large new plant which is to be built by the Crex Company at this point. The first section of the warehouse which is to be built will be 73 feet by 100 feet, with brick walls and timber roof. Railroad tracks have already been installed on the site. Plans for the entire plant have been prepared by Lockwood, Greene & Company, architects and engineers, of Boston and Chicago.

*New Jersey, Hawthorne. The Wagaraw Bleaching & Finishing Company, incorporated under the laws of New York in August with capital stock of $250,000, has taken over the Wagaraw Bleachery here. E. Mittelholzer, formerly with the Patchogue Mfg. Company, Patchogue, N. Y., is connected with the new concern.

*New Jersey, Somerville. The addition to the plant of the Redfern Lace Company is to be one story high, 100 by 200 feet, of brick and concrete construction, and will be equipped with machinery for making laces. The New York office is at 102 Fifth Ave.

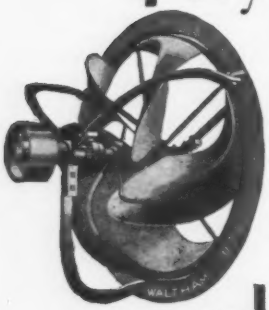
New York, Niagara Falls. The present plant of the Niagara Falls Linen Company is inadequate to fill the orders that have been offered the concern since manufacturing started about a year ago, and it is the intention of the company to build an enlargement and increase the number of looms from 32 to 100. The addition will be put up by local contractors. New machinery equipment has been arranged for. This concern specializes in fine linen for household use, including napkins, table damask, towelling, and huck crash.

*Pennsylvania, Chambersburg. The new Piedmont Silk Co., Inc., which took over the Chambersburg plant of the Cedar Cliff Silk Company, has started up preparatory machinery and will shortly have 100 looms running. Henry P. Fleitmann and H. P. Stanford, who control the new company and will sell the output, do business at 356 Fourth Ave., N. Y., under the name of Fleitmann & Company. Othello Sandbrook will continue in charge of the mill.

*Pennsylvania, Easton. A. J. Keenan, president and buyer of the new Easton Silk Dyeing & Finishing Co., hopes the new plant will be equipped ready to begin operations about Nov. 1. Silk and silk mixed piece goods will be dyed and finished. Later on these lines will be printed also and the dyeing, bleaching and printing of cotton piece goods will be added. Details of the plant have been given previously. Until November 1 Mr. Keenan's address is 2550 E. Allegheny Ave., Philadelphia.

*Pennsylvania, Kingston. The new silk throwing mill of A. L. Storms at Maltby started operations this week doing commission throwing. The equipment includes 10,000 spindles driven by steam and electric power.

Dye House Ventilation



DAVIDSON FAN
Probably the most widely used fan in the world.

How Are Your Conditions?

Dye House Ventilation is a difficult problem. We have solved it for many others. May we not help you?

Good Conditions Attract Good Workmen

Your profits depend on skilled labor. None but the poor kind will work under unhealthy conditions. Write us before cold weather sets in.

MASSACHUSETTS FAN CO.
400 Howard St. Watertown, Mass.

Quincy A. Shaw, Prest.
A. H. Tolger, Manager

A. J. Garceau, Treas.
Robt. C. Monteagle, Asst. Mgr. and Engineer

THE LOCKWOOD MANUFACTURING CO.

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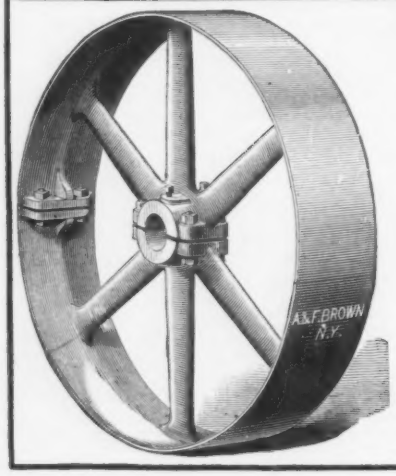

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Pennsylvania, Philadelphia. The Knecht-Mellon Mfg. Co., Inc., is looking for a location for a new mill which it is proposed to build. At present rented space is occupied on Allegheny Ave., near 21st St. Narrow fabrics are manufactured on 42 looms.

Pennsylvania, Philadelphia. Max Kellerman, formerly superintendent of Espen, Loeb & Company, who recently discontinued business, has installed machinery in a loft at 9th and Filbert Sts. to manufacture high-class bonnaz embroidery for the millinery, dress trimming and novelty trades. The equipment includes knitting machines and sewing machines.

Pennsylvania, Reading. The Acme Print Company, printers of hosiery bands, labels, tickets, stickers, boards, etc., finding their equipment insufficient to meet the demands made upon them from the textile mills throughout the country, are arranging for the installation of additional machinery in the way of the latest automatic presses and other equipment, making their plant one of the most up to date for this class of work in the vicinity of Reading.

Rhode Island, Pawtucket. Machinery is being installed in the addition to the plant of the Hope Webbing Co. on which work was started several months ago. The enlargement includes three new buildings, one of which is three stories in height, 172 by 42 feet, an ell, 99 by 42 feet, and a power house, 44 by 80 feet.

Rhode Island, Phoenix. Directors of the Phoenix Valley Dyeing Company have decided to enlarge and improve the plant with a view to increasing the output. Recently it has been necessary to operate considerably nights to keep up with the work. They dye, wind and spool woolen, worsted and cotton yarns and dye piece goods.

Kansas, Kansas City. It is reported locally that the Kansas City Cotton Mills Company will close pending the raising of $50,000 additional capital with which to purchase new machinery which will allow of manufacturing a variety of products. E. E. Holmes, secretary and treasurer of the company, is quoted as saying that he hopes the plant will soon be reopened with increased facilities. Spencer Turner, of J. Spencer Turner Company, New York, the selling agents, is quoted as stating that it is a question whether the mill will be reorganized.

Kentucky, Louisville. Reports that the Falls City Woolen Mills had shut down indefinitely, are incorrect. The plant closed only between seasons.

Maine, Bangor. The Fernald-Chase Company has been organized with capital stock of $10,000 to design and manufacture cloth. Eugene F. Fernald of Bangor is president and treasurer of the new concern.

Maine, Hartland. The Linn Woolen Company is operating its plant overtime. Dress goods, cloakings, shawls, kerseys, cassimeres and similar goods are manufactured on 14 sets of cards and 83 broad looms.

Massachusetts, New Bedford. There are vague rumors of two more cotton mills to be built in New Bedford. It is said that one of the new plants will be located on the north side and that financial aid for this project is assured. The other plant, according to report, will be located in the south end. The real estate market has been very active in the last two or three weeks.

Massachusetts, North Oxford. The plant of the Narragansett Worsted Company has been sold to Samuel Waldman and George H. Brow of the National Machinery Company, Providence. The Narragansett Worsted Company discontinued manufacturing a year or two ago.

*Massachusetts, Somerset. The Samoset Textile Company has resumed manufacturing and is making a line of knit sanitary napkins, cotton rope, clothes lines, corset laces and braids. A. E. Carey is treasurer, agent and buyer, and Joseph Cohen is superintendent.

Massachusetts, Uxbridge. The old Richard Sayles Woolen Company, which formerly operated the Rivulet Mills, has filed a petition for dissolution. It is set forth that the company has ceased to do business. The Rivulet Mills have been operated for the past year or two by the Bridgeton Worsted Company.

Massachusetts, Uxbridge. The Uxbridge Worsted Company is operating night and day and it is reported they will build a new mill in the near future. It was noted in August that negotiations had been under way for the purchase of a section of land close to the freight station of the N. Y., N. H. & H. R. R., and it is possible that the Uxbridge Worsted Company is the party trying to purchase this property.

Massachusetts, Webster. Through the efforts of the state board of arbitration the strike of employes of S. Slater & Sons, Inc., has been settled. Concessions have been granted by the company.

Mississippi, Natchez. It is reported that the Natchez Cotton Mills are to be put in condition to begin manufacturing at an early date. The plant has been shut down for two or three years.

*New Jersey, Passaic. Reports that the Tuxedo Worsted Company had shut down and would dispose of the plant are incorrect. The plant is operating as usual on dress goods and vestings and there is no intention of shutting down or disposing of the equipment.

New Jersey, Paterson. The dyeing plant of Daniel J. Sheehan Company, skein silk dyers, was sold at auction early in the week in small lots to a large number of purchasers. A large part of the equipment was secured by the United Piece Dye Works, Dexter, Lambert & Company, and the Gautchy Silk Dyeing Company.

New Jersey, Paterson. The Grobart Company has been incorporated with capital stock of $25,000 to manufacture silk ribbons. Harry L. Schoen, Sidney Aldman and Isadore Klenert, three lawyers, are the incorporators. The plant is at 18-22 Paterson St. and Edward Schweser is in charge.

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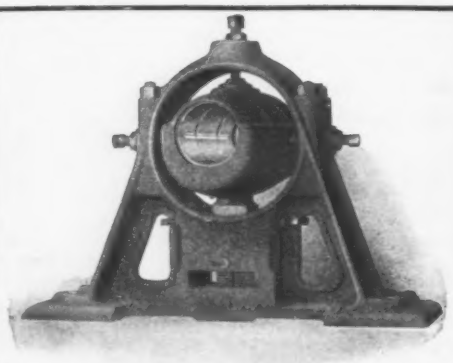

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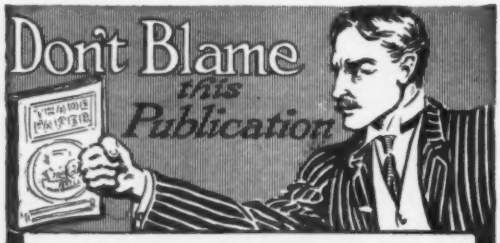

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Massachusetts, Assonet. It is reported that an offer for the Puritan Mills is being considered by the directors. The company was reorganized some time ago and started up after an idleness of several months. At present a small part of the plant is in operation. According to report an offer has been made by a man in New York who wishes to take over the control, but some of the stockholders are not favorable to the idea of selling on his terms. There is a report that a New Bedford man is seeking an interest that will identify him with the financial management in return for a considerable investment in the stock.

Massachusetts, Boston. F. V. Prior, formerly president and manager of the Merchants' Wool Scouring Company, is no longer connected with the business. Hereafter the operation of the mill will be confined to handling wool and noils exclusively. Under competent and careful supervision they are prepared to execute orders for assorting, scouring and carbonizing. Henry A. Leeds is treasurer.

Massachusetts, Fall River. The style of the Bradle Woven Label Company, a new concern manufacturing cotton and silk woven labels at Lowell and Rodman St., has been changed to the Marshall Woven Label Company. John Marshall is president and A. E. Carey is treasurer, superintendent and buyer.

Massachusetts, Fall River. At a meeting of the directors of the Luther Mfg. Co., a cash dividend of 20 per cent. was declared out of the surplus in the treasury. This calls for the distribution of $70,000. The directors also decided to issue a call for the annual meeting of stockholders to be held October 29, and to consider at that meeting a proposition to increase the capital stock of the corporation from $350,000 to $525,0000 by issuing a 50 per cent. stock dividend.

Massachusetts, Fall River. An extra cash dividend of $600,000, or 50 per cent. on the capitalization of $1,200,000, has been declared by the Union Cotton Mfg. Company. Print cloths and wide goods are manufactured on 92,864 ring spindles, 16,464 mule spindles, and 2,854 looms.

Massachusetts, Fall River. It is reported that the proposal to consolidate the Sagamore Mfg. Company and the Border City Mfg. Co. has been abandoned owing to the vigorous objection on the part of Sagamore stockholders.

*Massachusetts, Hinsdale. The strike at the Hinsdale Woolen Mills has been settled and the weavers have returned to their looms.

Massachusetts, Medway. Thomas Byron, overseer of carding at the Ray Mills of the American Woolen Company, Franklin, and Dr. Boynton of South Framingham, are negotiating for the brick shoddy mill formerly operated by the Medway Mfg. Co., with a view to starting it up.

Canada, Ontario, Alton. Alex. Dick is installing a number of hosiery knitting machines and will start up in the manufacture of heavy wool half hose.

New Jersey, Paterson. The local plant of the Ashley & Bailey Company at River and Putnam Sts. was disposed of in the liquidation sale being conducted by J. E. Conant & Company, auctioneers of Lowell, Mass., for $115,400 to Melvin G. Palliser, a lawyer located at 100 William St., N. Y. Mr. Palliser declines to say whom he represents, but has intimated that the purchaser would continue the plant. The property known as lot No. 4 was sold to Grant Sipp of the Sipp Machine Company, for $7,900. The Hawthorne plant in Paterson was not sold. At the second day of the sale the York (Pa.) Mill was sold to Douglas B. Greene of Philadelphia for $31,000.

New Jersey, Union Hill. Herman Simon, sole owner of the business of R. & H. Simon, directed in his will that a corporation to be known as R. & H. Simon Company should be formed for the purpose of perpetuating the business. The beneficiaries named in his will, including heads of departments and other employes, are to constitute the directors and stockholders of the proposed company. The largest stockholder will be Elizabeth Mary Simon, widow of Mr. Simon. Charles W. Muller, manager of the plant at Union Hill, will be the largest stockholder actively connected with the business.

New York, Cohoes. To make up some shortage in the day operation, due to lack of water power, the Harmony Mills have been running a few looms at night. This started a report that the weaving department was running on an overtime schedule. The Ogden Mill, which was started up several months ago to experiment in the manufacture of bags, is still being used for experimental purposes only.

*New York, Brooklyn. The two buildings to be erected at Wythe Ave. and S. First St. by the Fulton Bag & Cotton Mills will be used for warehouse purposes and for the manufacture of bags, cutting up the product of the mills at Atlanta, Ga. No spinning, weaving, bleaching or finishing will be carried on. Construction work will not be commenced until the spring of next year.

*New York, Kingston. A statement has been given out at the New York office of the Art Silk Yarn Company in which they say they are preparing to erect the projected factory at Kingston, that special machinery is being built, and that they will begin operations with a production of 1,200 pounds per day. They also say the sale of the entire output for the next few years is assured at a net profit of $1 per pound. Frederick Vietor & Achelis will act as factors financing the sales of the company.

*New York, Newburgh. John Deisseroth has been elected president and treasurer of the recently organized Palatine Silk Co. F. W. Fulda is superintendent and buyer. This concern began manufacturing last July, making dress silks on 20 looms.

New York, Rochester. The Allen Woolen Mills, manufacturers of men's wear, suitings, and overcoatings with 7 sets and 28 broad looms are running day and night shifts.

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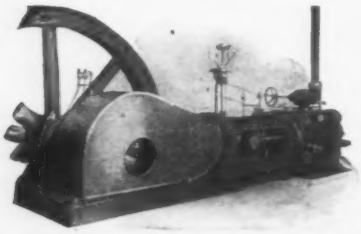

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Pennsylvania, Coatesville. At the sale of the Coatesville plant of Ashley & Bailey Company the property was purchased by S. J. Aronson, president of the Imperial Silk Co., of Paterson, N. J., for $42,000. Mr. Aronson has announced that the mill will be continued in operation.

Pennsylvania, Columbia. The plant of Ashley & Bailey Co. in Columbia was sold at the recent auction sale to Douglas B. Green of Philadelphia, for $85,000. Mr. Green purchased the York plant.

*Pennsylvania, Hanover. W. J. Klunk, 486 Carlisle St., Hanover, general contractor for the new silk mill being built here for E. & H. Levy, silk ribbon manufacturers of New York, is asking for bids on electrical equipment. Plans for the new mill were made by James McClymot of York.

Pennsylvania, Macungie. The Macungie Silk Company, manufacturers of bindings and ribbons, are running day and night with two shifts of operatives. D. D. Fritch is president and G. Byron Keppinger, secretary, treasurer and manager.

Pennsylvania, Marietta. The Marietta plant of Ashley & Bailey Company was purchased by D. G. Dery of Allentown, Pa., for $43,500. The mill will be continued in operation by Mr. Dery who reports that modern machinery will be installed as fast as possible to replace the old equipment of 284 looms.

Pennsylvania, Northumberland. A plan is being considered by the Susquehanna Silk Mills of Sunbury, to install 100 looms in the new mill being built here. This mill was originally intended for winding purposes only. A decision has not been reached in the matter.

Pennsylvania, Philadelphia. The Weigner-King Company has leased the building at 420-22 N. Marshall St., in which 2 garnetts, 2 pickers, 1 willow and 4 sewing machines are being installed to manufacture a line of cotton, felt and hair mattresses. The plant will be operated by gas power and the production sold direct.

*Pennsylvania, Philadelphia. Damage caused by fire at the Fox Chase Mills several weeks ago has been repaired. This concern took over the Belmont Mills in Fox Chase and manufactures Turkish towels and bath robe cloth, operating 60 narrow and 20 wide looms by steam power. The plant contains finishing and dyeing facilities. James H. Craig is president, M. J. Meehan, vice-president; E. W. Kelso, secretary and treasurer. The product is sold direct at 91 Worth St., N. Y. 12s, 14s, 2/20s and 2/30s cotton yarns in cops, skeins and warps are used.

Pennsylvania, Philadelphia. The A. G. Sherwood Upholstery Company is operating 27 looms on upholstery trimmings, with A. G. Sherwood as proprietor and superintendent, at 1516-18-20 Callowhill St. The production is sold direct.

Pennsylvania, Philadelphia. With William J. Benham, a real estate operator at 5146 Market St., S. L. Krauss, Esq., and Louis Feibelman as incorporators, a charter has been asked for the Penn Ribbon Company. Information as to where the company will locate its plant and the extent of its equipment could not be secured, but will be given at a later date.

Pennsylvania, Philadelphia. Creditors of the Pennhirst Mills, 62nd St. and Baltimore Ave., of which Richard Shapcott is the proprietor, at a recent meeting appointed a committee of three to examine into the stock and machinery with a view of selling it in the interest of the creditors. A statement was submitted showing liabilities of $7,300, the amount covering the claim of 35 creditors. The plant contains 7 sets cards and 736 spindles which they operated on woolen yarns.

Pennsylvania, Reynoldsville. The plant at Reynoldsville of the Greenblatt Textile Mfg. Co., Inc., was sold to Samuel Shapiro of 175 Wooster St., N. Y. City. Mr. Shapiro is now operating the plant on pile fabrics. This sale consists of the real estate, buildings and machinery, and part of the purchase price is represented by a mortgage on the plant given by Samuel Shapiro in favor of the Greenblatt Textile Mfg. Co., Inc. This change does not affect the plant of L. Greenblatt & Sons, Inc., in which there is no change. George Crossland continues as superintendent.

Pennsylvania, Scranton. The National Silk Throwing Company has been incorporated with capital stock of $35,000 by J. L. Wolf of New York City, N. P. McTague, and H. M. James, of Scranton. Mr. McTague is vice-president and general manager of the Wyoming (Pa.) Silk Mfg. Company and has an office in Scranton.

*Pennsylvania, Slatington. It has been decided not to rebuild the plant of the Slatington Silk Company, recently burned with loss estimated at $20,000; insurance, $14,000, but to locate elsewhere. An investigation of available locations is now being carried on by H. O. Jones, the manager of the business. A commission silk throwing business was carried on.

Pennsylvania, Stroudsburg. Machinery equipment of Thomas Kitson & Son is being taken out of the mill and shipped elsewhere. The plant was recently shut down owing to unsatisfactory labor conditions.

Pennsylvania, Williamsport. The Morrison Silk Company has been incorporated with capital stock of $60,000 by Thomas, George and Arthur Morrison, Thomas H. Hammond, and Thomas J. Mitchell. The new corporation succeeds Thomas Morrison & Sons, manufacturers of broad dress silks, operating 40 looms.

Rhode Island, Bridgeton. The Premier Worsted Mills, manufacturers of fancy worsteds for men's wear, are running the weaving department overtime until nine o'clock. It is understood this schedule will be maintained indefinitely.

Rhode Island, Valley Falls. A committee composed of William B. Hawes of O. S. Hawes & Bro., T. J. Levine of the Universal Silk Mills, Charles A. Lorenz of A. P. Villa & Bro., Herbert H. Marble of the Arkwright Mfg. Co., and W. F. Stiles of the Nockege Mfg. Company, has been formed to supervise the business of the Tilton Mills, Inc. Twenty per cent. of the claims against the company are to be paid within three months.

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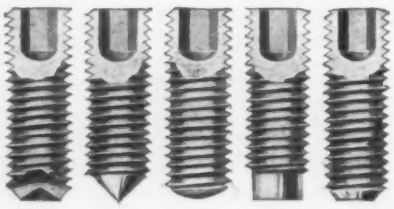

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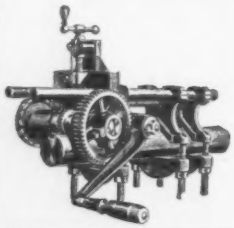

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AMSTERDAM, N. Y.

New York, New York City. A charter has been granted James F. Moffett & Co., Inc., with capital stock of $25,000 to make woolen and worsted goods. The incorporators are Joseph T. Brown, Jr., 55 Liberty St., Harriet W. Moffett, and Allan Morris, 485 Central Park, West, N. Y.

New York, New York City. A new concern has been organized under the name of Steinberg & Rawitzer with capital stock of $20,000 to manufacture braids and trimmings. The incorporators are William Steinberg, Isaac Rawitzer, Isadore Steinberg and Samuel Fingerhut.

New York, New York City. With an equipment of 60 looms and auxiliary machinery, supplied by machinery dealers in Philadelphia, S. B. Sargent, formerly connected with Fidelity Mfg. Co., is starting up a plant in New York City on cotton damasks. The address of the new plant has not been learned.

*New York, Whitestone. During the present month the new silk mill being built by Jacob Sulzbach and associates will be equipped. Detailed reports have been given previously.

North Carolina, Bessemer City. At the sale of the Harborough Mill the property was purchased by J. R. Walker for the Mercantile Trust & Deposit Co., of Baltimore, Md. It is reported the plant will be put in operation at an early date.

North Carolina, Charlotte. A new cotton mill to manufacture coarse yarn is being organized by Charles B. Skipper, John C. Rankin and S. M. Robinson. It is reported that a mill will be built a few miles out of Charlotte and equipped with about 5,000 spindles.

North Carolina, Charlotte. George A. Howell & Sons, cotton yarn manufacturers whose plant was destroyed by fire a few months ago, have decided not to rebuild and the property has been sold.

*North Carolina, Charlotte. Equipment for electric drive, including 37 motors ranging from 3 to 100 h. p., has been ordered by the new Thrift Mfg. Company from the General Electric Company. This concern took over the Thayer Mfg. Company project and is completing the mill and installing machinery.

North Carolina, Fayetteville. At the sale of the Fayetteville plant of Ashley & Bailey Company the property was purchased by Melvin G. Palliser, an attorney of New York, for $23,000. It will be remembered that Mr. Palliser bought the Paterson plant.

North Carolina, Gastonia. There is a rumor that a new company is being formed to build another cotton mill in Gastonia.

North Carolina, High Point. It is reported that a new cotton mill company is to be organized here.

North Carolina, Mayesworth. An increase has been made in the capital stock of the Mayes Mfg. Company to $450,000. Combed peeler and Sea Island yarns are manufactured.

New York, Syracuse. A charter has been granted the Onondaga Rug Works, Inc., with capital stock of $2,000 to manufacture carpets and rugs. The incorporators are Herbert E. Cass, Ralph A. Hodgkins, and John E. Reynolds, all of Syracuse.

North Carolina, Piedmont. The Piedmont Mattress Co. has been incorporated with capital stock of $25,000 to manufacture cotton mattresses. The incorporators are S. Q. Barnes, A. W. Person and L. A. Gaston.

North Carolina, West Durham. According to report, a silk manufacturer located in Pennsylvania will start a mill in West Durham.

*Oregon, Klamath Falls. The Santian Woolen Mills of Stayton are running full time and it has not been decided as yet whether the business will be moved to Klamath Falls. The Chamber of Commerce of Klamath Falls has offered inducements to John P. Wilbur, the president and manager, to remove the business here.

Pennsylvania, Allentown. The Jordan Silk Dyeing Company has been incorporated with capital stock of $15,000 to dye silks, silk threads, etc. The men interested are William A., Edward F., and August L. Gehringer.

Pennsylvania, Bridgeport. James Lees & Sons Co., manufacturers of woolen and worsted yarns for weaving, will add to their lines the manufacture of knitting yarns in all numbers both in the grey and dyed.

Pennsylvania, Chester. The yarn department of the Aberfoyle Mfg. Company is very busy coning yarns for the hosiery trade. If the volume of business continues they will probably build an addition in the early part of 1914.

Ohio, Covington. A branch plant is being established here by the Imperial Underwear Company of Piqua. The Imperial Company has absorbed the Stuart-Hance Underwear Co. as noted in another part of this issue.

*North Carolina, Hildebran. The new hosiery mill, known as the Waldensian Hosiery Mill, No. 2, has begun manufacturing making women's hosiery, with 25 knitting machines and two sewing machines. A further installation of 25 knitting machines has been ordered. The product is sold in the grey at the present time. Electric power is used. This business is a co-partnership in which the Waldensian Hosiery Mill of Valdese, N. C., and J. A. Cline, formerly of the Hickory Hosiery Mill at Hickory, N. C., are equally interested. Mr. Cline is general manager and has charge of the business, also acting as buyer. Albert Garrou, formerly of the Waldensian Hosiery Mill at Valdese, is superintendent. While the new business is connected to a certain extent with the Waldensian Hosiery Mill at Valdese through the part ownership of that concern and through the further fact that the goods are dyed and finished at Valdese and shipped from there, the business is entirely separate and run under separate management.

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Seamless Hard Fibre Roving Can

The Only Can For Fine Spinners and the Very Best for All Grades of Work.

It does not have the riveted seam that strains and breaks the sliver.

NO SEAMS or RIVETS

Absolutely Smooth

No Waste or Broken Ends

Write for prices.

MANUFACTURED BY THE

Standard Fibre Co.

SOMERVILLE, MASS.

Canada, Alberta, Medicine Hat. H. A. Bonner and associates plan to establish a knitting plant at Red Cliff, a suburb of Medicine Hat. Mr. Bonner's address is 99 Farnham Ave., Toronto.

*Connecticut, Addison. The projected addition to the plant of the Glastonbury Knitting Company, which it was reported in the spring would be built this fall, will not be constructed until next year.

*Illinois, Rockford. Nels Sterner of Gotherburg, Sweden, heads the project to establish a new hosiery plant at Trollhaltan, Sweden, for which capital has been raised in Rockford. The name Forest City Knitting Company will not be used by the new concern as it was reported previously, and the officers previously mentioned, all Rockford men, will not go to Sweden. The machines to be used in the plant will be the Nelson type, which are sold by the Forest City Knitting Co., of Rockford, under certain restrictions. The new company is independent of the Nelson Knitting Company and the Forest City Knitting Company. Men's woolen half hose, boys' and women's hosiery will be the product.

Indiana, Fort Wayne. The Anthony Hosiery Mills have been incorporated with capital stock of $15,000 to manufacture and sell hosiery. The incorporators are Abraham and Morris Levy, and H. M. Kahn.

Maine, Portland. The Wool Importing & Knitting Company has been incorporated with authorized capital stock of $200,000 by C. F. Tennnt, Elton H. Thompson and Edward J. Connor.

*Maryland, Emmitsburg. Reports that the Union Mfg. Company, Frederick, Md., would increase the capacity of the Emmitsburg branch, are not correct.

Rhode Island, Hope Valley. At a meeting of creditors of the Locustville Woolen Co. a committee was appointed to look after the interests of the creditors during a period of adjustment of the company's interests which is to cover about a year. The company made a proposition of settlement in full to be paid in monthly instalments. The committee consists of William C. Johnson of Johnson & Walker, cotton yarn dealers of Providence, William J. Rooks of Hope Valley, and A. Leviton of New York.

Rhode Island, Kenyon. The town council has voted to exempt the Kenyon mill property from taxation for a period of five years at the request of New York parties who have a plan to equip the property as a bleachery.

Rhode Island, Providence. A department for mending and burling has been established in Olneyville Square by the Langford Worsted Mills, one of the plants of the Cleveland Worsted Mills Company. It is rumored that a new building is to be erected for this plant.

*Wisconsin, Whitewater. Finishing of knit coats only will be done in the new branch established here by the Bradley Knitting Co. of Delavan.

Virginia, Charlottesville. The Charlottesville Silk Mills, recently incorporated as noted with authorized capital stock of $75,000, have taken over the Philipsburg Silk Company of Philipsburg, N. J. Joseph P. Ryan, president and manager of the Philipsburg Company, will remove to Charlottesville and act as treasurer and manager of the new concern. The new concern will operate in addition to the 42 silk looms of the Philipsburg Company a cotton dress factory, utilizing all the machinery formerly operated by the Marchant Mfg. Company of Charlottesville, manufacturers of overalls. The silk machinery will be installed in the old Marchant Mfg. Company's plant. E. C. Rolker of Brooklyn promoted the new concern and has been elected president and buyer. The product will be sold by Rolker & Murphy, N. Y. E. C. McCarty of Charlottesville is secretary.

*Virginia, Danville. The electrical contract for wiring the new mill, weave shed and power house of the Riverside & Dan River Cotton Mills, for light and power, has been awarded to the Whitall Electric Co. of Westerly, R. I. This enlargement of the Riverside & Dan River Cotton Mills is one of the most extensive cotton mill developments in years and includes a 75,000-spindle yarn mill, a 2,200-loom weave shed and a 3,000 h. p. power station. Lockwood, Greene & Co., Boston, are the architects and engineers.

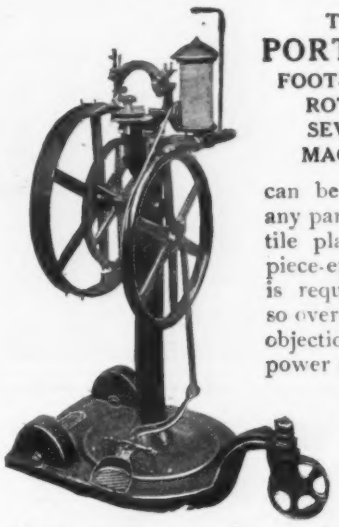
Virginia, Harrisburg. A committee has been appointed by the Harrisburg Board of Trade to secure manufacturing industries. Several months ago the Victory Silk Company of Paterson offered to establish a plant at Harrisburg if certain conditions were met. It is understood that the new committee appointed is authorized to accept these conditions.

Washington, Ellensburg. A company was recently formed under the name of the Ellensburg Woolen Mills to succeed the Washington Woolen Mills Co. The new corporation has a capital stock of $165,000. J. H. Smithson is president, A. C. Spalding, treasurer and agent, and A. L. Reid, superintendent.

*Wisconsin, Waupun. Work is about half completed on the new reinforced concrete warehouse being built for use in connection with the twine plant and the knitting mills at the state prison. The new warehouse, when completed, will be 80 by 240 feet, and is divided by fire walls into three sections. The construction is being done by convict labor. The binder twine plant is operated under the State Board of Prison Control with the prison warden in charge. The knitting plant is operated by the Paramount Knitting Co., of Chicago. Recently the Paramount Knitting Company secured a three-year contract for prison labor in the knitting mill.

New York, New York City. The Pioneer Knitting Mills, Inc., manufacturers of sweaters at 3635 Third Ave., are to increase their equipment and will probably add four knitting machines. Sixteen knitting machines and nine sewing machines are operated at present. Jacob Bandes is president and buyer, and Louis Bandes is superintendent.

USE IT ANYWHERE



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FOOT-POWER
ROTARY
SEWING
MACHINE

can be used in any part of a textile plant where piece-end sewing is required, and so overcomes, all objections to a power machine.

The cloth is stretched to a large feed wheel connected to looper shaft, which can be instantly detached

By a device peculiarly our own, needles do not break and stitches are all uniform length, and feed of cloth wheel is positive.

It will sew Cotton or Woolen Goods, Thick or Thin, Wet or Dry.

Send for complete catalog.

Satisfactory operation of all machines guaranteed.

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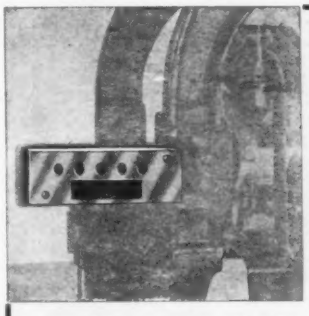
SALEM, MASS., U. S. A.



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In Paying Weavers

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Count the "picks" with Roco Counters —they are accurate.

We make a variety of counters for use on different textile machines. Send for "Catalog 18."

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sent on trial most anywhere

Sews any Fabric Thick or Thin, Wet or Dry Without Change. Fine Stitch or Coarse Stitch.

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BIRCH BROS.
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Also
Finishing Machinery

CURTIS & MARBLE MCH. CO. WORCESTER MASS.

Latest Improved Chinchilla Machine

The Vulcan Roving Can prevents broken ends

in roving by its smooth, glossy inside finish and true running on the card table. The body is made of the best chemically treated fiber which has many of the qualities of rawhide. All rivets are burred so they cannot draw out. Rings are made of steel and have rounded edges. Every can is accurate in size and perfectly round. They are built for long continued satisfactory service. Write for prices and list of users.

James Hill Manufacturing Co.,
PROVIDENCE, R. I

MILL NEWS.

*South Carolina, Great Falls. The Republic Cotton Mills have not made plans for the new mill which it has been reported is projected. It is known that when the present plant was built several years ago the plans contemplated a second unit which would double the capacity. However, they state that they have no plans for building a new mill at the present time and that reports of the projected increase are unauthorized.

Texas, Yoakum. Agitation for the establishment of cotton mills in this section is in progress.

New Jersey, Paterson. Papers of incorporation for the H. E. Wilde Warping & Winding Company have been filed. The authorized capital stock is $10,000. The incorporators are Harold E. Wilde, Henry Wilde and Annie Wilde. The new corporation takes over the business of the same name which was started a few weeks ago in the Slater Street Mills on Dale Ave. It is expected the equipment of the plant will be increased from time to time.

North Carolina, High Point. Two additional spinning frames and twelve automatic looms are being installed in the Pickett Cotton Mills, manufacturers of print cloths. A number of new tenement houses are being built for operatives.

*North Carolina, Newton. The improvements in equipment made by the Clyde Cotton Mills comprise the installation of three lappers and ten cards to replace old machines.

*North Carolina, Salisbury. Construction work is nearly finished on the new mill being built as an addition to the plant of the Salisbury Cotton Mills. It is reported the new mill will be equipped with machinery now running in the old mill and that new machinery will be installed in the main mill.

North Carolina, Swepsonville. The Virginia Cotton Mills have arranged to install for individual electric drive considerable apparatus which will consist of a 550-kva. alternating current generator, two 200 k. w. transformers, 571 motors ranging from 1/3 h. p. to 10 h. p., switchboard, switches, etc., and have contracted with the General Electric Company to furnish the complete equipment.

*North Carolina, Thomasville. The branch of the Sellers' Hosiery Mills, of Burlington, which has been established here, is running and it is said that within a short time they will have 75 knitting machines in operation. A brick building, 150 by 50 feet, was secured early in August and about 50 knitting machines and electric power equipment installed. Cotton half hose is the product. D. E. Sellers of Burlington, heads the concern and attends to the buying.

*Pennsylvania, Tower City. A line of samples is being made up by the new Tower City Knitting Mill, W. J. Henry & Company proprietors. This is a small plant equipped to manufacture women's knit underwear and when running in full 15 hands will be given employment. W. J. Henry is superintendent and buyer. It was noted several weeks ago that Mr. Henry would establish a small women's underwear plant in Tower City.

Pennsylvania, Philadelphia. The Standard Knitting Mills of Pennsylvania, operating a plant at 27 South 7th St., have taken over another floor in the building in which they are located and enlarged their plant by the addition of a number of new knitting machines. They report that their extensive lines of fine sweater coats are now ready for 1914 and are being offered to the trade. They sell direct.

Pennsylvania, Philadelphia. The Modern Knitting Mills, 730 W. Girard Ave., who have been manufacturing a line of silk knitted neckties on 30 knitters, have installed four new flat knitting machines on which they are making sweater coats and mufflers. The production is sold direct.

Pennsylvania, Philadelphia. Pillet, Steerman & Co., 123 N. 3d St., formerly Pillet & Co., operating a knitting plant on silk neckwear at 44 N. 4th St., have increased their equipment to 14 knitters on which they are manufacturing the same line of goods, using art silk and mercerized cotton yarns.

Pennsylvania, Philadelphia. The plant of the Pioneer Knitting Mills, Inc., is being moved from 1031 Race St. to the building at 327 N. 8th St., which is considerably larger than the old quarters and will enable them to increase their equipment as their business requires. They are manufacturing silk knitted neckwear on 40 knitters, selling direct.

Pennsylvania, Philadelphia. The Diamond Knitting Mills are removing their plant from 327 N. 8th St. to the new building at the corner of 7th and Green Sts. The plant contains 200 knitters and 15 flat machines on which they are manufacturing mercerized and silk neckties and scarfs, the production being sold direct.

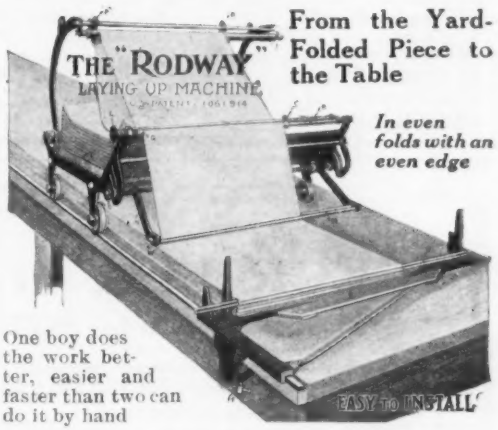
Pennsylvania, Philadelphia. The Reliable Knitting Mills, 271 South 5th St., of which Lipschutz & Wenger are the proprietors, have increased their knitting equipment to 10 machines on which they are manufacturing sweater coats and selling direct to the jobbing trade. Four more knitters will also be installed within a short time.

Pennsylvania, Philadelphia. The Quaker City Sweater Mills, Inc., now located at Broad and Hamilton Sts., have leased a portion of the large new building at Broad and Wallace Sts., now in process of construction. They expect to remove after the first of December next. They are operating 62 circular and 50 flat knitting machines and 28 sewing machines on sweaters and sweater coats of all kinds, selling through agents in this city and New York.

Pennsylvania, Philadelphia. T. P. McCutcheon & Bro., manufacturing cut and knitted silk neckwear at 11th and Arch St., have removed their knitting plant from 340 Collom St. to larger quarters at 4945 Wakefield St., Germantown, where they have increased their equipment to 18 knitters.

*North Carolina, Marion. The old Mt. Ida Hosiery Mill has been started up by J. W. Streetman and R. L. Greenlee, the new owners, under the name of the Carolina Hosiery Mills. Ladies' hosiery is being manufactured. J. G. Berry is superintendent.

To Fold to Any Length



From the Yard-Folded Piece to the Table

In even folds with an even edge

One boy does the work better, easier and faster than two can do it by hand

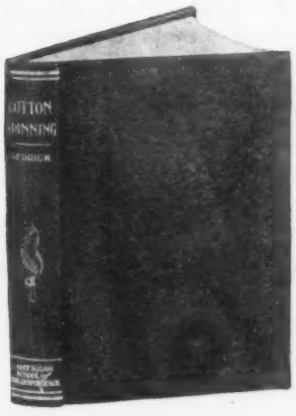
The RODWAY Type $150
The SHUTTLE Automatic . . 400

Write for circulars and references

The Shuttle Machine Company
18 East 17th St., New York

Cotton Spinning

By
CHARLES C. HEDRICK



An advantage of this book is its treatment of American machinery. In the matter of clear illustration of the working of cotton opening and picking, carding, combing, drawing and spinning machinery, it has never been surpassed. Complete calculations. 300 pages; 240 illustrations; half leather binding.

Price $3.00. Express prepaid

Lord & Nagle Co., 144 Congress Street
Boston, Mass.

ACCURATE COUNTING GUARANTEED

Nothing is left to guess-work when you use Durant Counting Machines. Mechanically accurate, absolutely reliable and far more economical than hand-counting. Adapted for pick, piece and lineal counting in all the variations of knitting and weaving.

DURANT COUNTING MACHINES

Their cost is absurdly low compared to their value in a mill. Samples sent on free trial if you advise us what you wish to count. *Ask for Catalogue 20*

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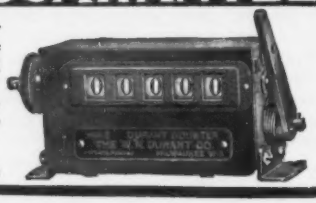
N. E. Agent, Wm. V. Threlfall Co., Marshall Bldg., Boston



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MANUFACTURERS OF

Card Clothing of Every Description

FALL RIVER, MASS.

SAVE Their Cost In Freight.

THE CHAFFEE PATENT CLOTH BOARD,
Made of paper and wood,
Needs no covers,
Will not split or warp;
Not liable to break.
BOX SHOOKS and CLOTH BOARDS.

MFG. BY CHAFFEE BROTHERS COMPANY, OXFORD, MASS.

Clean LIGHT Strong

Thread and Silk **SPOOLS** of any description

Made from one piece, up to 6″ long and 3″ dia.

We are located in the best white birch region. Our work and prices seem to satisfy the most particular customers. We can give any finish desired. Estimates furnished on samples submitted

E. L. Tebbets Spool Company, Locke's Mills, Maine

DIXON PATENT STIRRUP ADJUSTING SADDLE

1,200,000 pairs now in use

Best Saddle for Top Rolls of Spinning Frames

Send for Samples

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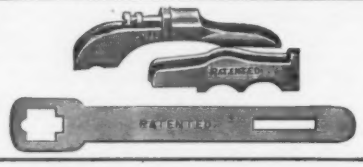
Manufacturers of all kinds of Saddles, Stirrups and Levers



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BOSTON, MASS. ROCKFORD ILL. GREENVILLE, S. C.

HAND KNOTTERS AND WARP TYING MACHINES

MILL NEWS

Pennsylvania, Reading. The George J. Schaut Manfg. Co., manufacturers of hosiery and half hose boards, making a specialty of boards for dyeing and singeing purposes, have removed their plant to larger quarters at 141-143 Cedar St. Additional floor space in their new location has been secured and a number of new machines will be installed with a view of increasing their production.

*Pennsylvania, Wilkesbarre. R. C. Werkheiser is still working on his new hosiery mill project, but little progress can be reported. Mr. Werkheiser's address is 141 Sharpe St.

Pennsylvania, Williamstown. Notice has been filed of an increase in the capital stock of the Unrivaled Hosiery Mill, Inc., from $60.000 to $100,000. About a year ago this concern built a new 3-story mill and installed a complete underwear plant which they have since operated in addition to the original hosiery plant. S. D. Bausher, proprietor of the Gotham Underwear & Bleach Works of Hamburg is president, and J. B. Lesher is treasurer and buyer. Seamless half hose in cotton and silk and ladies' union suits are manufactured on equipment of 130 knitting machines, 29 ribbers, finishing machinery, electric power equipment, etc.

*Rhode Island, Thornton. William Burton is still working on his project to organize a hosiery manufacturing concern under the name of the National Silk Hosiery Company. Mr. Burton was employed for many years by George E. Boyden & son of Providence and Thornton, and is familiar with the manufacturing business, but he seems to make little progress on the new project.

Utah, Ogden. The Utah Knitting Co., manufacturers of underwear, hosiery and sweater coats, find it difficult to keep up with orders and an increase is contemplated. Eventually a mill especially adapted to the business will be built. C. H. and G. M. Thorstensen, the owners of a retail store at 302 25th St., own the knitting company which is located at 2473 Grant Ave.

Virginia, Suffolk. A. A. Turner will establish a knitting mill in a building formerly occupied by the Methodist Church in East Suffolk.

Connecticut, Stafford. A number of new looms are being added to the equipment of the Phoenix Woolen Co., manufacturers of heavy weight meltons and kerseys. The mill is being operated on a full time schedule and to full capacity in all departments.

Indiana, Mexico. The Mexico Woolen Mills, Inc., a new concern which began operations here several months ago making a specialty of knitting yarns and also manufacturing blankets and automobile robes, plans gradually to increase its facilities. They have three sets of cards, 1,200 mule spindles and 6 broad looms in the plant at present, also dyeing and finishing equipment. The plant has excellent water power and the water is said to be unsurpassed for dyeing and finishing purposes. The concern has capital stock of $25,000. C. H. Black is president and George Willson is treasurer.

"It is Adjudged, Ordered and Decreed:

that the defendant, ——— Co., a corporation, its officers, agents and employees, be and they are hereby perpetually enjoined and restrained from describing belts * * made by any other than complainant as Gandy belt or Gandy belting * * ."

This decree in favor of

The Gandy Belt

was recently obtained in the United States District Court of Virginia after a warmly contested litigation.

Always look for the red belt, with one green edge—that's the GANDY. Sample on request.

THE GANDY BELTING CO.
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The Hinsdill System
PUTS THE
Light on the Work

not in the eyes to blind and distract your help but on the work—just where it is needed.

Adaptable to Any Class of Work

It directs the light just where wanted. Lights of 4 c. p. can be used where 16 c. p. was formerly necessary. This change soon *pays* for the installation and then *saves money for you.*

Your own machinist or engineer can easily install both system and fixtures. Get price and descriptive literature.

Hindsill Electric Company
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Practical Christmas Gifts

No present that you can select will give so much benefit and profit as a good textile book or magazine. ¶Nothing will appeal more strongly to the man who has been in the mill a lifetime, or to the young man just starting out. ¶We will send books or magazines direct to anyone you want them sent to, without further charge, and with a note expressing your compliments.

Some Suitable Books

Cotton Manual. *Broadbent*	$0.75
Weaving—Plain and Fancy. *Nelson*	1.25
Jacquard Mechanism. *Bradbury*	4.00
Cotton Combing Machines. *Thornley*	3.00
Mercerization. (2 vols.)	7.50
Simplex Tables	.50
Textile Fibres. *Matthews*	4.00
Study of Textile Design. *Barker*	2.50
Worsted Spinning. *Priestman*	2.50
Worsted Handbook. *Buckley*	.50
Bleaching and Finishing of Cotton *Trotman and Thorp*	5.00
Chemistry and Practice of Sizing *Bean and Scarisbrick*	10.00
Chemistry and Practice of Finishing (2 vols.) *Bean and McCleary*	15.00
Textile Printing. *Knecht and Fothergill*	10.50
Manual of Cloth Finishing (Wool)	6.50
Art of Soap Making. *Watt*	3.00
Carpet Manufacture. *Bradbury*	3.00
Bleaching and Dyeing Vegetable Materials. *Hubner*	5.00
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Cotton Spinning (3 vols.) *Taggart*	7.50
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Manual of Dyeing (2 vols.) *Knecht, Rawson and Loewenthal*	12.00
Calculations in Yarns and Fabrics *Bradbury*	1.25
Wool Combing. *Priestman*	1.50
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The **Textile World Record** ..... To Canada, $2.50	**$2.00**
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Space for names and addresses is provided below.

Date .....

Lord & Nagle Co., Boston, Mass.

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Lord & Nagle Company, Publishers, Boston, Mass.

Pennsylvania, Slatington. The only increase being made by the Crystal Knitting Mills is the installation of a hosiery press.

Pennsylvania, Virginsville. A new boiler is being installed in the branch plant of Charles A. Wanner. The mill was formerly run by gasolene power but will be changed over to steam power. The main plant of Charles A. Wanner is at Fleetwood.

*Rhode Island, Pawtucket. Practically all machinery equipment for the new addition at the plant of the Lumb Knitting Co. has been ordered and some of it is now coming in.

*Wisconsin, Waupun. The plans of the Paramount Knitting Co. for the development of the Waupun plant are not fully matured. It has been noted that increases would be made. The new plant at Beaver Dam, Wis., is in operation, and a waste card and waste spinning frame have been installed at the Kankakee, Ill., branch.

*North Carolina, China Grove. The Lillian Knitting Mills Co., No. 2, a branch of the Lillian Knitting Mills Company of Albemarle, which has been in course of construction for several months, is ready to begin manufacturing. One hundred knitting machines and two sewing machines have been installed on which seamless cotton hosiery will be manufactured, operating by electric power. 12s, 17s and 18s carded yarns will be used. A. L. Patterson of Albemarle is president and buyer.

Rhode Island, Woonsocket. John Turner, superintendent of the Victoria Plush Mill at Swarthmore, Pa., Arthur Robertshaw of the Lenni, Pa., plant of the Victoria Plush Mill, and Otto Timme, of New York, who it is understood is connected with the concern of E. F. Timme & Son, selling agents of the Victoria Plush Mill, have organized the Woonsocket Falls Mill with capital stock of $100,000. The large stone mill on the Blackstone River, known as the White Mill, was bought some time ago and has been repaired and put in shape to meet the needs of the new concern. The building is now a 4-story structure and is equipped with a new steam power plant. The new company will probably manufacture silk and cotton plushes and velvets similar to the lines of the Victoris Plush Mill.

*Canada, Ontario, Almonte. When the enlargements and improvements being made at the plant of William Thoburn are completed the equipment will consist of 6 sets of cards and 22 looms. At present 4 sets of cards and 15 looms are operated on fine flannels and tennis suitings.

Connecticut, Mystic. The Mystic Woolen Co. is putting up a modern brick building to take the place of frame buildings in which wet finishing and dyeing operations were carried on. The new building will provide a little additional floor space, which will be filled up with extra looms to maintain the regular production when the new law for shorter hours goes into effect in Connecticut on January 1. Fancy cassimeres, unions and flannels are manufactured.

POWELL VALVES

We manufacture a complete line of globe, angle, cross check and gate valves.

Ask your dealer for Powell Valves or write us.

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DEPENDABLE ENGINEERING SPECIALTIES
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WILLIAM SCHOFIELD CO.
Krams Ave., formerly Church St., Manayunk, Phila., Pa.
Textile Machinery
Makers of Rag, Wool, Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.
Special Machinery Built. General Machinery Repairs.
Relagging Picker Cylinders a Specialty.

This Brush
is the best Mill and Loom Duster at the price on the market

No. 46
Write for Prices and Free Sample
M. Cocker & Co., Phila., Pa.

DRONSFIELD CARD GRINDERS
When Ordering New Cards
Always Specify "DRONSFIELD" Grinders
The Grinders of World-Wide Fame
Supplied by all the leading
Textile Machinery Importers, Boston, Mass.

For Boiling Out Cotton Yarns

before mercerizing, better results can be secured by using

Wyandotte Textile Soda

than can possibly be obtained when any other alkali is used.

The Wyandotte Textile Soda cleans the yarn positively clean, so that it comes out soft, lofty and lustrous, not dead and harsh, as you have often seen it.

Consequently, such yarns, when mercerized, have a higher luster and a more silky feel.

The use of Wyandotte Textile Soda for this purpose is proving of immense practical value wherever tried, and in no place are the results more noticeable than in mercerized hosiery yarns. Wyandotte Textile Soda is also proving of an unusual assistance in the bleaching process.

And again for kier boiling

Wyandotte Concentrated Ash

is accomplishing results not obtained with other materials.

Order from your supply house, or write us for further information.

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Wyandotte, Mich.

This Soda has been awarded the highest prize wherever exhibited

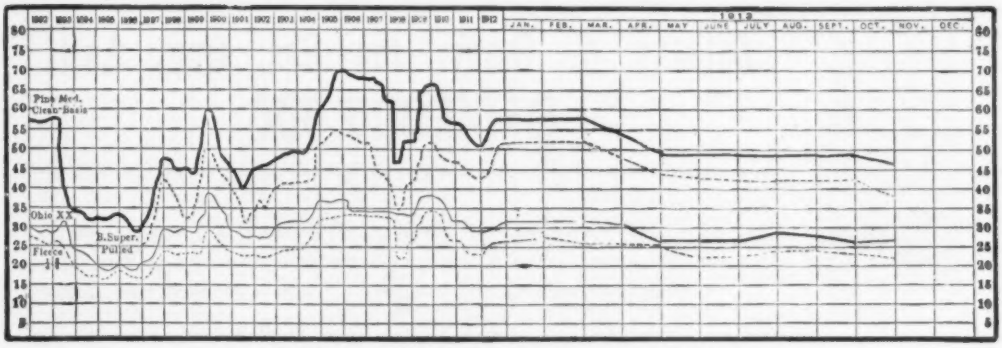


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

December the first will be here in a few weeks and after that date wool will be "free". This is the thought that has caused a bearish sentiment in the American wool trade, and resulted in sales at slight reductions from market quotations. This weakening of the market has been only in spots, there being a strong belief throughout the trade that wool will be in higher early in the new year. It is argued that the weakness of the market in America is but a local and passing phenomenon, and that after the sentimental effect of "free wool" has passed, the actual conditions of supply and demand throughout the world will have their natural effect on the market for wool in this country.

The placing of wool on the free list on December 1, while tending to depress the wool market in the United States, has the opposite effect abroad. An increase of the supply of imported wool in this country means a corresponding decrease in the supply available for consumption abroad. Thus what is calculated to weaken the market here will operate to raise prices abroad.

The report of a recent purchase of sample lots of territory wool for export to Antwerp has provided the wool trade with an interesting topic for discussion. Domestic manufacturers have continued their policy of buying only to fill immediate wants, but there have been several orders placed that go to show this policy has about reached the limit. Wool dealers are well stocked with samples of foreign wool and tops, but it will take a long time before buyers have been educated to the full possibilities of the situation created by the recent revision of the tariff.

MILL NEWS

Massachusetts, Methuen. Edwin J. Hylan of Lowell has leased the Tremont Worsted Mills and will operate the plant under the name of the Merrimac Valley Mills on worsted dress goods. Mr. Hylan organized the Musketaquid Mills of Lowell about ten years ago and disposed of this plant to the United States Worsted Company when that corporation was formed. It is reported that George McCartney of Lawrence, formerly connected with the Lawrence Dye Works Co., will be superintendent.

LOGWOOD BLACKS

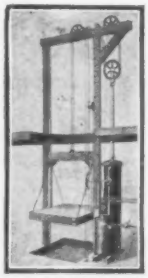
FASTNESS TO CARBONIZING

Do you know that the rich Logwood Blacks when properly dyed are fast to proper carbonizing?
The advantages of using Logwood Blacks for black and white effects need little demonstration.
We can furnish you with new and improved methods of dyeing Logwood Blacks and of carbonizing, whereby the Logwood Blacks retain their true shade and impart to fabrics the desirable Logwood Black effects.

AMERICAN DYEWOOD COMPANY

NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Direct Acting



Double Geared

Anthony N. Brady, the Gas King, Left $100,000,000

So the newspapers all say.

Out here in little old Coatesville $100,000,000 is a whole lot of money.

To poor, old country machinists like us a good many fewer millions or parts of millions would be a whole lot of money. Well, I guess so!

Wonder how a fellow must feel to be worth so many millions—and can have everything you like; but—

Yet even a splendid man like Mr. Brady had to die. And his great estate was all **LEFT.**

Yes, Henry, **LEFT;** not one cent went along.

But here is the moral we want to draw:

Mr. Brady started life with nothing but a clean, young heart and his good, strong body.

He had to leave school at fifteen and get out and hustle. His first job was a brush boy in a barber shop in Albany, N. Y.

His last job was President of the Consolidated Gas Co. of New York City, and other big things.

He made his **BIG MONEY** in Gas.

He would take Gas Works out of the hands of the **DEAD ONES,** and by simply putting brains in the manufacturing end, and commonsense and courtesy in the selling end, make these lame ducks **BIG, RICH PROPERTIES.**

Are you listening, William Henry?

AND IN THESE MANY PROPERTIES THE FIRST THING HE DID WAS TO PUT IN RIDGWAY STEAM HYDRAULIC ELEVATORS.

We wonder if you will be smart enough to catch on. The secret of the Brady money making type of men is that they know a good thing when they see it. One in a hundred!

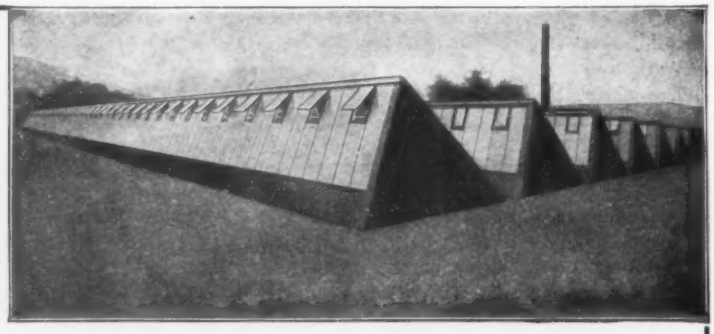
Mr. Brady was among the first manufacturers to appreciate what it means for a factory to

"HOOK'ER TO THE BILER"

CRAIG RIDGWAY & SON CO., Coatesville, Pa.

ELEVATOR MAKERS TO FOLKS WHO KNOW

Ventilation Results At a Low Cost



Don't you often stop at FIRST COST and forget the bigger item of the future MAINTENANCE.

Don't you occasionally have trouble with a skylight leaking or giving out altogether or a window opening device getting cranky or busting up. This is where the MATERIAL reference comes in.

And now for RESULTS.

Anti-Pluvius puttyless skylights and Straight-Push and Lovell sash operators are doing for others highly satisfactory service without more than ordinary attention, this in our understanding of results. Specializing is skylights and sash openers with trade names

ANTI-PLUVIUS (Trade Mark)
Puttyless Skylights

that have a factory and organization behind them, we aim to provide what will obtain the maximum returns for the expenditure. Drouvé stands for quality and another way to spell this is RESULTS.

The G. DROUVÉ CO., Bridgeport, Conn.

180 N. Dearborn Street, Chicago, Ill.

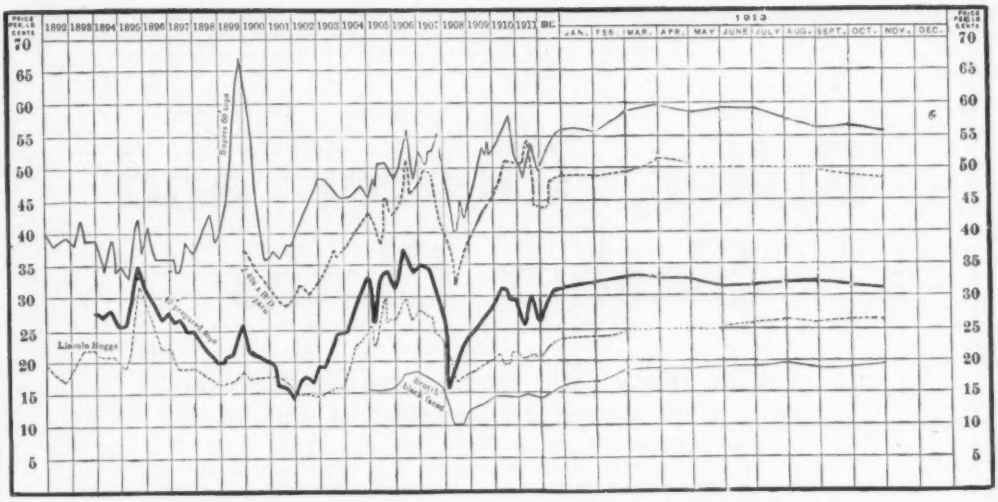


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

By Our Regular Correspondent

Bradford, Eng., Oct. 23, 1913.

Wool is the dearest article in the market and the easiest to sell, for neither top nor yarn buyers have responded to the values set in the London and Australian sales. Outsiders have been ready to pay more than Bradford buyers for wool and although more business has been done in yarns and tops it has been arranged with difficulty at poor rates of profit. Spinners hear so much from their weaving customers of the effects of high prices on sales of fabrics that they work with great caution. The merino spinners who have been best off for so long are closer to the end of their engagements than for two or three years past. Spinners of crossbred only keep going by sacrificing profits.

The Continent has been taking fine crossbred wools and these are in better domestic demand than the coarser varieties. Some inquiries for them have come also from America. A few good lots of British wools of the favorite types—North hoggs, Irish and halfbred—have been shipped to the United States, and as the supply is not large these takings have some importance. Recent pacemaking has all been done by outside buyers and by the holders of wool who have temporarily the stronger position. There are no prospects of a departure from conservatism by buyers for English consumption.

MILL NEWS

Mississippi, Meridian. It is reported the Priscilla Mills, a branch of the Alden Mills of New Orleans, will enlarge.

New Jersey, Belvidere. It is reported John Allen will start a hosiery factory in Belvidere and has purchased property adjoining the Pennsylvania R. R. freight station. He has awarded the contract for building a mill. Mr. Allen has been for years connected with the Bamford Bros. Silk Mfg. Company.

New Jersey, Grenloch. J. A. Starkey, superintendent of the Camden County Hospital for the Insane, has plans to install hand hosiery machines and hand carpet looms in the hospital. He would like information of this machinery and for the present wishes to secure a second hand hosiery machine and a second hand Smyrna carpet loom.

New Jersey, Newark. C. R. Lindner, 500 Avon Ave., corner of 20th St., is interested in purchasing machinery and yarns for the manufacture of knitted sweaters.

New Jersey, Paterson. A charter has been secured by the Helvetia Knitting Company with authorized capital stock of $25,000. The new corporation succeeds the Helvetia Knitting Mill, Church and Market Sts., conducted by J. Schearer. Men's, women's and children's woolen and worsted sweater coats are manufactured on 18 flat knitting machines and 8 sewing machines.

New York, Brooklyn. M. Saldin, proprietor of the Union Sweater Mills, making sweaters and underwear at 147 Scholes St., is looking for a new location in a Rhode Island or Massachusetts town.

New York, New York City. The Beach Bathing Suit Co., Inc., has been organized with capital stock of $25,000 to manufacture bathing and gymnasium suits. The incorporators are Cornelius J. J. Henry; Daniel J. O'Hearn, 29 W. 32nd St., and W. H. Dodd, 20 Broad St.

New York, New York City. It is reported that Henry Schanzer Company, 594 Broadway, manufacturers of infants' sweaters and other knit goods, will move the first of the year to 11-13 E. 26th St.

Roller, Clearer and Slasher Cloths

On the kind of mill cloths you use depends to a great extent the quality of the yarn you produce.

Your Roller Cloth must have uniformly even surface and afford just the right cushion. Your Slasher Cloth must be of the right consistency to force the sizing thoroughly into the yarn, and of the right quality to give long service. Your Clearer Cloth must have strong and even nap.

For many years we have made cloths that meet the requirements of the leading cotton mills in America and now for our mutual protection we are putting our trade-mark on each yard. Order our Brand of your Mill Supply House. Specify it to your Roller Coverer. It is your absolute guarantee of quality, service and price.

If your Supply House is out of Stock, we will ship to you direct.

American Felt Company

TRADE MARK

BOSTON, 103 Bedford Street
NEW YORK, 114 E. 13th Street

If you employ a roller coverer outside your mill, specify our cloth. The trade-mark is your protection.

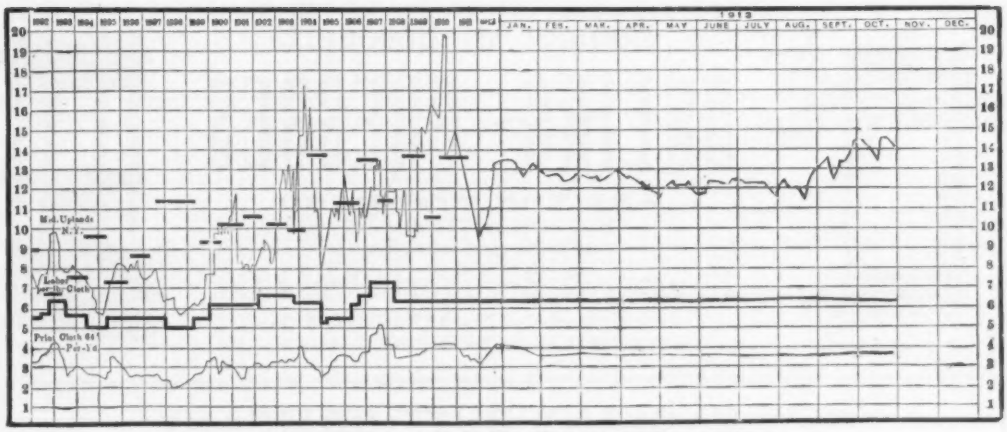


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

The pronounced uncertainty regarding a number of important factors in the supply and demand has given speculators their opportunity in the cotton market. First among these uncertain factors is the size of the crop killing frosts throughout the South, accompanied and aggravated by a heavy rainfall have encouraged the bulls to operate on a large scale. The goods market has tended toward depressing prices. Reports from abroad indicate a letup, temporary at least, in the practically uninterrupted activity that has prevailed in the foreign cotton goods trade for the past six years. This slackening in demand is calculated to depress the price of raw material, but there has been no reduction in working time to affect the demand for the raw material. The movement into sight from Sept. 1 to Oct. 31 is reported by the "Chronicle" for a series of years as follows:

Year	Bales
1913, Oct. 31	4,532,120
1912, Nov. 1	4,458,744
1911, Nov. 3	4,572,111
1910, Nov. 4	3,906,535
1909, Nov. 5	4,344,145

The world's visible supply on Oct. 31 is estimated by the same authority at 4,347,632 bales, as compared with 4,443,538 bales on the corresponding date in 1912, and 3,697,725 bales in 1911.

Quotations on leading grades of Egyptian cotton are reported by Richards, Atkinson and Hascrick as follows:

S. E. P.	23¾
O. R. D.	22⅞
T. I. Z.	22
A. D. E.	21⅝
M. A. H.	19¼

MILL NEWS

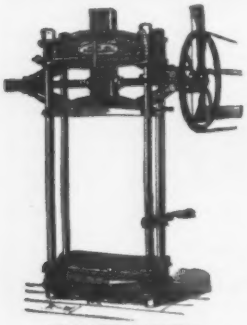
*North Carolina, Troy. Work has been started on the mill to be built for the new Troy Knitting Mills Company by the R. A. Brown Construction Company of Concord. As noted in previous reports the knitting mill will be of brick, 3 stories high, 60 by 100 feet, with a 1-story dye house, 60 by 40 feet. The concern was incorporated several weeks ago with authorized capital stock of $35,000, of which $27,000 will be issued. The product will be hosiery. Electric power will be used. J. C. Hurley is president, and Barna Allen, treasurer.

*Pennsylvania, Allentown. J. Fink Thompson, formerly with the Central Knitting Company at Bethlehem, is interested in a new company which will establish a plant at Rittersville to manufacture children's waists under the name of the Rittersville Waist Company. A building has been secured and manufacturing will be started about November 20 with 10 knitting machines and 24 sewing machines. A charter will be applied for and organization effected within a month. It is understood that arrangements have been made to dispose of the entire output to one concern in New York City. Electric power will be used. Mr. Thompson's address is Allentown, Pa.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes

SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES

Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



KNUCKLE JOINT

Boomer & Boschert

BALING PRESSES

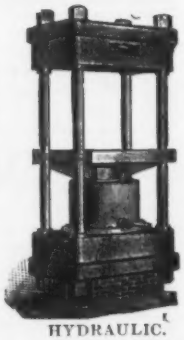
ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size Any Power

Boomer & Boschert Press Co.

338 West Water St., SYRACUSE, N. Y.

Southern Agent, A. H. WASHBURN, Charlotte, N. C.



HYDRAULIC.

NEW ENGLAND BUTT COMPANY

304 PEARL STREET, PROVIDENCE, R. I.

BRAIDING MACHINERY

ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS

SOLID SASH AND CURTAIN CORDS

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS

THE DOUBLE, BURNISHED OR DIAMOND FINISHED

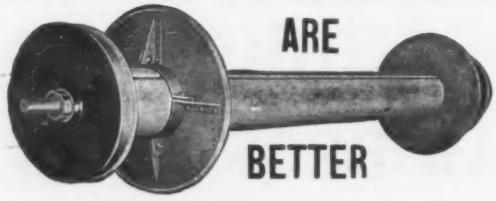
RIBBED RING WHITINSVILLE MASS.

MADE BY THE WHITINSVILLE SPINNING RING CO.

THE BEST THAT EXPERIENCE CAN PRODUCE, THAT MONEY CAN BUY

METAL
Bobbins
Spools
Beam
Heads

You can reduce your overhead expense



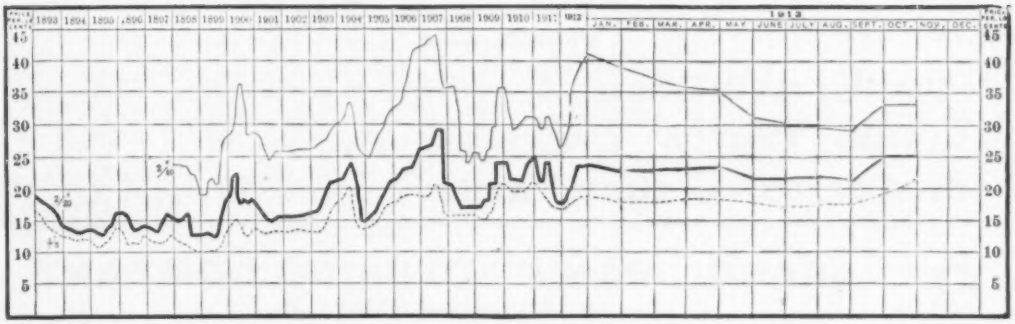
ARE BETTER

by using
STAMPED STEEL
Reels—Beams
Bobbins

Write for Catalogue No. 102

FRANK MOSSBERG CO., Attleboro, Mass.

Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

THE COTTON YARN MARKET

The demand for cotton yarns has fallen off somewhat, but prices continue firm and the decrease in business has had little effect upon quotations. Spinners appear to have an abundance of contracts on hand. As long as cotton holds around its present level, there will be little inclination to cut prices. Deliveries have been kept in good shape in most instances and there is little complaint along these lines. At the same time there is no indication of any accumulation.

Manufacturers on the whole are busy and what idle machinery there is is caused by lack of help rather than lack of orders. Manufacturers of narrow fabrics such as tapes, braids, etc., Turkish towels and bath robes, dress goods and novelties, are very busy. Some lines of carpets and rugs are active, but ingrain manufacturers could stand more business. Manufacturers of men's wear are also an exception and could handle more business. Upholstery manufacturers are fairly busy, especially on lighter weight fabrics and draperies.

There has been a very active demand for 2/20s and 2/30s warps, 1/16s and 1/20s skeins and 1/20s warps. Supplies of these numbers have been somewhat small, but are now nearer normal. Apparently the demand for immediate delivery has been satisfied.

Eastern Cops

6s	20¾
8s	20¾
10s	23¼
14s	24¼
16s	24¾
18s	25¼
20s	25¾
22s	26¼
24s	26¾
26s	27¼
30s	28¼
34s	30½
36s	31½
40s	33

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

12s	24½
14s	25
18s	26
20s	26½
24s	28
26s	29
30s	30
36s	37½
40s	39½
45s	43½
50s	46½
55s	48
60s	53

Eastern Two-Ply Warps, Carded Peeler

2/30s	30½
2/36s	37½
2/40s	39½
2/45s	43½
2/50s	46½
2/60s	54½

THE PHILADELPHIA MARKET

7s and coarser	22½
8s and 9s	22½
10s	22½
12s	23
14s	23½
16s	24
18s	24½
20s	25
22s	25½
24s	26½
26s	27
30s	28

THE J. R. MONTGOMERY CO.

Windsor Locks, - Conn.

MANUFACTURERS OF

Novelty Yarns — Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps — on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.

Mercerized Cotton Yarns — Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

ARABOL MANUFACTURING COMPANY,

100 William Street New York.

Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners.

EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS.

MONUMENT MILLS, HOUSATONIC, MASS.

HIGH GRADE COTTON YARNS White, Colors, Bleached

On Beams, Jack-Spools, Cones, Skeins and Chain Warps

FAST-BLACKS & COLORS | For Woolen Mills a Specialty | WE SELL DIRECT

C. MOORE & CO.

Manufacturers of

Twines, Threads and Yarns

Jacquard Harness Twines of all kinds on hand and made to order

S. W. Cor. Fifth and Market Sts., Phila.

JOHN F. STREET & CO.

Cotton Yarns

PROVIDENCE, R. I.

Providence, Chicago, Philadelphia, New York

JAMES E. MITCHELL CO.

COMMISSION MERCHANTS

COTTON YARNS

122-124 Chestnut Street, - - - Philadelphia, Pa.
Brown Building, 185 Summer Street, - Boston, Mass.

William Whitman & Co

COMMISSION MERCHANTS

COTTON and WORSTED YARNS

BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

LUDWIG LITTAUER

YARNS

Tram, THROWN SILK, Organzine.
ARTIFICIAL OR WOOD SILK.

Plain, Gassed, Mercerized, Prepared and other Cotton Yarns. Polished and Glazed Threads and Yarns. Mohair and Worsted, Tinsel and Turkey Red Yarns.

Best Quality Harness Twine

109 GREENE STREET, NEW YORK
Silk Throwing Mills BOONVILLE and YONKERS, N. Y.

YARNS

Simplex Yarn Tables.

Showing equivalent sizes of different systems of numbering yarn; cotton, woolen, worsted, etc., so that the sizes of different standards may be quickly compared. Also contains a number of other valuable yarn tables for designers, manufacturers and knitters. PRICE 50c. Textile World Record, Boston.

HIGH GRADE **PRESS PAPERS** FOR SILK, WOOLEN AND KNIT GOODS FINISHING

ALSO Jacquard Cards AND Specialties

THE MERWIN PAPER COMPANY

MILLS: RAINBOW, CONN.-HARTFORD, CONN.

40s	35
50s	41

Southern high grade mule yarns:—

Cones

10s	24
12s	24½
14s	25
16s	25½
18s	26
20s and 22s	26½-27
24s	27½

Southern frame yarn, lower grades:—

6s and 8s	22
10s	22

Eastern cones (high grade quality):—

10s	24½
12s	25
14s	25½
16s	26¼
18s	26¾
20s and 22s	27¼-27¾

Skein yarn (mostly Southern):—

4s and 8s soft	22
10s and 12s	22½-23
14s and 20s	23½-25
22s	25½
10/2	23
16/2	24
20/2	25
30/2	28
40/2	34
8/2	22½
7/6	22½

Southern warps:—

10/1	22
14/1	23
16/1	24
20/1	25
22/1	25½
26/1	26½
30/1	28
8/2	22½
12/2	23
14/2	24
16/2	24½
20/2	25½
26/2	27
30/2	28
40/2	34
50/2	41

MILL NEWS

North Carolina, Statesville. The Steel Hosiery Mill, which was burned last July, will not resume business. The loss was about $25,000, with insurance of $13,000.

North Carolina, Tarboro. A new company has been organized under the name of the Fairview Hosiery Company with capital stock of $20,000, all of which has been paid in. A building has been secured and it is reported will be equipped to turn out 250 dozen pairs of hosiery a day. George Howard is president; W. G. Clark, vice-president, and C. A. Johnson, secretary and treasurer.

New York, Cohoes. Reports that enlargements were being built to the plant of the B. & L. Textile Company and that the concern had decided to continue in the old building are not correct. They are still looking for larger quarters in order to allow of an increase in the equipment, as noted in a recent report.

New York, Niagara Falls. The Cataract Knitting Company, Inc., has been granted a charter with capital stock of $5,000 to manufacture hosiery and underwear. The men interested are Isaac Traub, Edward Delehant and Albert Gold, all of Niagara Falls.

New York, Catskill. A large new steam boiler has just been installed in the Union Mills plant. The new boiler is of 150 h. p. and replaces two old boilers.

RAMIE YARNS
In all numbers for
Knitting, Weaving and Laces
Manufacturers
Erste Deutsche Ramie Gesellschaft
Emmendingen, Germany
Sole Agents
PFALTZ & BAUER
Importers
300 PEARL STREET
NEW YORK

THE HALL LACE CO., Jersey City, N. J.
MANUFACTURERS OF
LACES AND INSERTIONS
in qualities, widths and designs especially adapted for trimming knitted underwear.
E. WHEELER JENKINS, SELLING AGENT
Mariner and Merchant Bldg., 3d and Chestnut Sts., PHILADELPHIA
New York Office, 366 Broadway.

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GOLD STAMPS
SKETCHES AND SAMPLES ON REQUEST
MEYERCORD CO. PHILADELPHIA & CHICAGO.

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TRIMMINGS of All Kinds
FOR KNIT UNDERWEAR
Mariner and Merchant Bldg., 3d and Chestnut Sts., PHILA., PA.
N. Y. Office, 366 Broadway

S. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS
FITCHBURG, MASS.
Capacity, 45,000 Spindles.
HIGH GRADE YARNS
From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

JENCKES SPINNING COMPANY
PAWTUCKET, RHODE ISLAND
COTTON YARNS
CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS.
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

INDUSTRIAL MILLS CO.
Jasper and Huntingdon Sts. Phila., Pa.
Manufacturers of
NARROW FABRICS
SPOOL TAPES, STAY BINDINGS AND BRAIDS
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SAXON
New Guaranteed Non-Shrinkable Tape

Reels for Cotton WOOLEN AND WORSTED
Patented Hosiery Winders, Cop Winders and Spoolers.
LINDSAY, HYDE & CO.,
2124 to 2130 East York St., PHILADELPHIA, PA.

A. G. THURSTON & SON
Manufacturers of
Fluted Rolls, Pressers for Flyers
AND GENERAL MACHINERY
Specialties made of Renecking, Refluting, Filing and Honing of all kinds of Rolls. Flyers Repaired and Fitted with any desired Style of Pressers, Spindles Straightened, Restepped and Retopped.
BOX 528, FALL RIVER, MASS.

Knitting and Weaving YARNS
Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment
EDWARD S. HYDE
226 CHESTNUT STREET
Philadelphia, Pa.

Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.
May we send samples? 15 colors and white
LOWELL CRAYON CO. Original Manufacturers LOWELL, MASS.
TRADE MARK ON EVERY BOX

The Bradley Stencil Machine
Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.
A. J. BRADLEY General Sales Agent 101 Beekman St. New York, U. S. A.
Also manufacturers of Oil Stencil Board. Write for prices and samples.
101 Beekman St. New York, U.S.A.

F. W. MAURER & SONS CO.
MANUFACTURERS OF
Fringes, Tapes, Bindings & Narrow Fabrics
Office and Factory: WAYNE AVE. and BRISTOL ST.
PHILADELPHIA

Woolen and Merino YARNS
Eaton Rapids Woolen Mills
EATON RAPIDS, MICHIGAN

Fred Sternberg & Co.
530 BROADWAY, NEW YORK
MERCERIZED GLAZED GASSED } COTTON YARNS

BOSTON MASS. BRADFORD ENG.
RICHARDS, ATKINSON & HASERICK
IMPORTERS
TEXTILE MACHINERY
MILL SUPPLIES
EGYPTIAN COTTON
PHILADELPHIA OFFICE "THE ARCADE"

LINEN YARNS

There has not been very much change in the linen market since last advices, but there is a gain in strength from day to day. Buying has been more general and all descriptions of yarns have participated to some extent in the demand. For tow yarns in particular there is still a very active demand. The demand for heavy numbers being at times exceedingly difficult to meet, prices have been firmly maintained all through.

—÷—

("A" Quality)

35s Lea on cones	94
50s Lea on cones	95-1.05
60s Lea on cones	1.00-1.10
80s Lea on cones	1.08
90s Lea on cones	1.15-1.20
100s Lea on cones	1.32
110s Lea on cones	1.50
120s Lea on cones	1.80

—÷—

MILL NEWS

*Ohio, Piqua. The Imperial Underwear Company has absorbed the Stuart-Hance Underwear Company and the Stuart-Hance Company will be dissolved. A. D. Hance has been elected president of the Imperial Underwear Company, and C. E. Stuart, treasurer and buyer. It was noted a week ago that the capital stock of the Imperial Underwear Company had been increased from $50,000 to $150,000. A branch factory is being started at Covington, O.

Ohio, Toledo. An increase has been made in the capital stock of the Dolphin Hosiery Company from $50,000 to $75,000. This concern recently moved into a new plant and greatly enlarged its facilities.

Pennsylvania, Auburn. The plant of the Walborn Knitting Mills, including machinery and real estate, is being offered for sale. This is a small plant containing 5 knitting machines and 5 sewing machines which formerly manufactured women's ribbed underwear.

*Pennsylvania, Hamburg. Application has been made for a charter for the Clover Underwear & Bleach Works, a new concern which we reported in September would take over the Gotham Underwear Mill, No. 2. The incorporators are J. Edward Miller, Oliver A. Lau and George A. Zook. As noted in the previous report a small women's underwear plant at Hagerstown, Md., operated by Mr. Zook under the name of the Quality Mills, will be consolidated with the Gotham Underwear Mill, No. 2, by the new concern.

*Pennsylvania, Lykens. H. R. Fisher reports that buildings to replace the plant of the Estate of John R. Fisher, which was burned down some time ago, will not be built until next summer at the earliest. They are doing business on a small scale in a rented building.

Pennsylvania, Philadelphia. Schorr & Wollman, operating the Schorr-Wollman Knitting Company, 334 Market St., have dissolved partnership. The business will be carried on by H. Schorr individually under the name of the Schorr Knitting Company. Silk knitted neckwear is the product.

Pennsylvania, Philadelphia. Dunwoody & Brandeis, operating the Dundeis Hosiery Mills, manufacturers of men's and women's seamless cotton and silk hosiery, at 3719 Filbert St., have dissolved partnership. The business will be conducted in the future by Mr. Brandeis, who assumes all responsibilities, etc.

*New York, Broadalbin. Work has been started on the new 3-story mill, 60 by 70 feet, for the Broadalbin Knitting Company, Ltd. Complete report of enlargement has been given.

HUGHES FAWCETT
115 and 117 Franklin St., New York
Linen Weaving and Knitting Yarns
Linen Jacquard Harness Twines
And Linen Yarns and Threads for every purpose
Turkey Red Yarns
LARGE STOCK PROMPT DELIVERIES

LINDSAY THOMPSON & CO., LTD.
FLAX SPINNERS BELFAST, IRELAND
Linen Weaving and Knitting Yarns
LINEN THREADS OF EVERY DESCRIPTION
T. J. PORTER & SONS Large Stocks
Selling Agents, Philadelphia Quick Delivery

THE RAMIE AGENCY
Manufacturers' Agents
RAMIE THREADS AND YARNS
Ramie Slivers and Rovings Ramie Gas Mantle Threads, and Everything in Ramie
45 EAST 17TH STREET, NEW YORK

Dobbins Soap Mfg. Co.
PHILADELPHIA
Makers of Soaps Especially Adapted for All Kinds of Textile Mfrs. Use. Send for Sample.

TEXTILE MANUFACTURERS ! ! ! ASK ABOUT OUR NEW

HYDRAULIC TESTING MACHINE

For testing the strength of Cloth, Paper, or any material you wish to know the strength and elasticity of.

We also manufacture **WARPERS and BEAMERS** for Ribbons, Tapes and All Narrow Goods.

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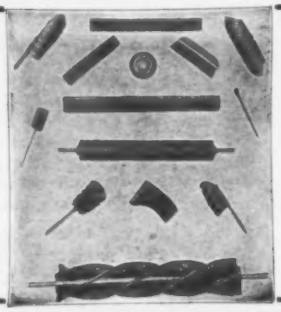
We Make and Repair

Brushes

For Every Known

Fabric

The Name MASON Guarantees



Mason Brush Works

Worcester, Mass.

Agt. and Mgr.
CHAS. A. O'NEIL

WOOLEN SPINNERS!

Your mule banding is not a big item. A few cents a pound either way won't make your fortune. BUT, good banding that turns out GOOD yarn is quite likely to help do it, despite the Tariff.

Why not "TRY LAMBETH NEXT TIME?"

LAMBETH ROPE CORPORATION New Bedford, Mass.

SOAPS HIGH GRADE SOAPS
Bleaching, Fulling and Scouring
SOAPS
Red Oil and Olive Oil Crown Soaps
J. O. Draper Co. Est. 1800 Pawtucket, R. I.

Established 1844.

BENJ. BUCKLEY'S SON,

(WM. J. BUCKLEY) *Gun Mill, Patterson, N. J.*

Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted Machinery.

Roving Spindles and Flyers a Specialty. Light Forgings.

REPAIRING OF ALL KINDS.

Established 1796

Special shaped carbon, black diamond, pointed tools for turning paper, rag, corn husk and cotton calender rolls, hard rubber, fibre, etc. Manufactured by

Thos. L. Dickinson, Successor to John Dickinson, 64 Nassau St. New York City

Elliot Cloth Folder and Measurer

FOR PRINT WORKS, GINGHAM AND COTTON MILLS, BLEACHERIES, ETC., ETC

Send for circular

Manufactured by

ELLIOT & HALL, 54½ Harmon St., Worcester, Mass

The Structure of the Wool Fibre

By F. H. BOWMAN, D. Sc., F. R. S. E., F. L. S.

A revised edition of the original work, published in 1880 and immediately accepted as the standard, covering further extensive researches since that time.

475 Pages. 80 Illustrations. $3.00. Sent on receipt of price

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New free Catalog of Textile Books sent on request

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65 Worth Street, New York

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"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.

F. C. BARTON, President

65 Worth Street, New York

Bias and Straight Cut Fabrics and Ribbons.

Embossing and Cutting Customers Own Goods a Specialty.

MILL NEWS

Connecticut, Hartford. Joseph S. Heilpern and Norman Gross have started a knitting plant at 6 Village St. on full fashioned worsted men's and women's sweaters. They are operating 15 knitting machines and 7 sewing machines under the name of the Lion Mills.

Georgia, Lafayette. P. D. Fortune of the Lafayette and Union Cotton Mills, A. R. Fortune of the Walker County Hosiery Mills, both of Lafayette, and J. C. Miller, of Chattanooga, will start a new hosiery mill here. A building will be erected shortly. Manufacturing will begin with about 60 knitting machines.

*Minnesota, Minneapolis. The Lake Street Knitting Works, a new plant established several weeks ago at 1705 E. Lake St. by Fred Palmdahl, has equipment of 10 knitting machines and three sewing machines, operated by electric power on all kinds of jackets and sweater coats, also men's, women's and children's stockings.

*New Jersey, Boonton. The new Boonton Hosiery Company will start manufacturing with 18 or 24 full fashioned machines for making silk hosiery. The concern has organized with George E. Fichtner, president, treasurer and buyer. Electric power will be used. This concern was incorporated under the laws of New York several weeks ago with authorized capital stock of $100,000 by Mr. Fichtner, who was formerly connected with Marshall, Field & Co., and Paul Guenther & Co., Dover, N. J., and others. A new mill is being built.

*New Jersey, Medford. The new mill for the Powell Knitting Co., Philadelphia, is nearly completed and will be ready for occupancy in about three weeks. Work was started on the building in July. Several months ago the Powell Knitting Company installed a few hosiery machines in Medford at the solicitation of the Board of Trade in order to try out the labor conditions. Good labor was available and the company decided to accept the Board of Trade's offer to put up a mill to be occupied by the Powell Knitting Company as a permanent branch. The new mill is to be equipped with machinery which will give employment to about 150 hands.

*New York, Niagara Falls. Quarters at Ontario Ave. and Tenth St. have been rented by the Cataract Knitting Company, Inc., recently organized as noted with capital stock of $5,000 to manufacture knit goods. Machinery will be installed to begin the manufacture of sweaters before the end of this month. The officers of the company are Louis Brown, president; Edward Delahunt, vice-president and secretary; and Isaac Traub, treasurer. The above officers with Albert Gold, and Moses Feingensohn, all of this city, are the directors.

North Carolina, Durham. A mill is to be built on Alston Ave., Durham, by the new North State Cotton Mills, reported incorporated a week ago with capital stock of $24,000. J. S. Carr, C. McD. Carr, W. F. Carr of the Durham Hosiery Mills, Inc., and W. J. Berry are interested.

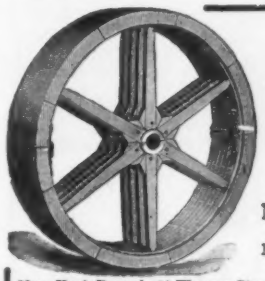
DIXON'S FLAKE GRAPHITE

The Ideal Lubricant For Textile Machinery

Ask for Sample No. 120

Made in Jersey City

JOSEPH DIXON CRUCIBLE COMPANY
JERSEY CITY Established 1827 NEW JERSEY



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SAGINAW Manufacturing Company
SAGINAW, MICH., U. S. A.
New Illustrated Catalogue on request

New York Branch, 88 Warren Street
Chicago Branch, 105-109 North Canal Street
Sales Agencies in all the Principal Cities
Cable Address: Engrave A B C and Lieber's Codes

BRUSHES

for all mill needs made by
FELTON

We also give prompt attention to refilling old brushes. Finest of bristles used pegged or wire drawn.

S. A. FELTON & SON CO. Manchester, N. H.

PROVIDENCE MENDING CO.

Burlers, Speckers and Menders of Textile Fabrics

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PHILADELPHIA, PA.

The INTERNATIONAL

Distributes 15 cubic feet of **fresh air** per minute and from 1 to 4 gallons of water per hour as required.

25 Per Cent More Moisture than any other Humidifier gives

No return pipes to become clogged; no danger of damage by water; no attention required.

Costs no more than any other.

No cost for maintenance.

International Moistening Company

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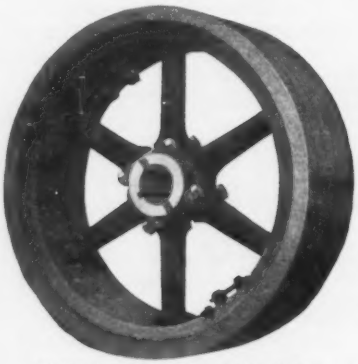
DODGE



Dodge Iron Center Wood Rim Pulley
Set Screw Eliminated

$4,000 Worth of These Pulleys in Charlton Mills

THERE is over $4,000 worth of Dodge iron center wood rim pulleys in the new Charlton Mills, Fall River, Mass.

The order was placed only after a thorough investigation of other makes. Since the pulleys have been in operation, James Sinclair, a Charlton Mill official, writes, "*the pulleys are running fine and giving satisfaction.*"

Dodge Iron center wood rim pulleys are especially adapted to textile service—they combine high speed with safety and are built to last for years in hard service.

In casting the iron center without a rim it is possible to eliminate the shrinkage strains to which all iron pulleys are commonly subject. Moreover, the wood and iron together renders the pulley particularly fit to absorb shocks, so that it is well adapted to drive lines of shafting or machines where the load is intermittent and thrown off and on suddenly. Finally the wood rim offers the best surface possible for belts.

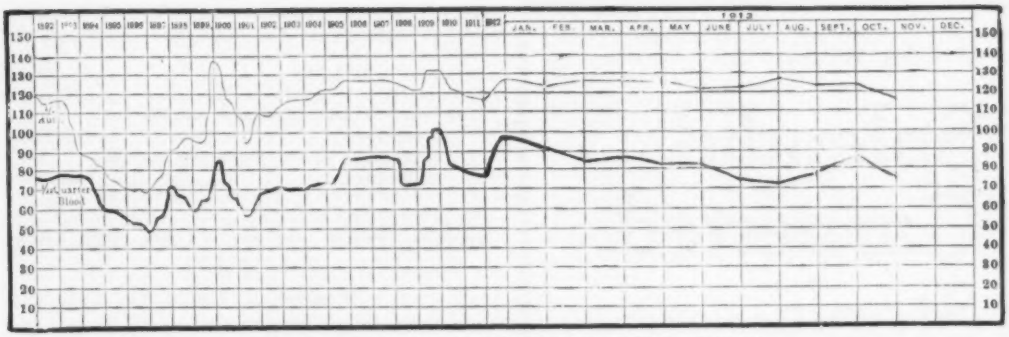
We have a little book, describing a test that showed a speed of five and one-half miles per minute. Perhaps you'd like it. Ask for No. 18.

Dodge Manufacturing Company

Power Transmission Machinery

Mishawaka, Indiana

Branches and Agencies in All Principal Cities



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

THE WOOLEN AND WORSTED YARN MARKETS

Spinners of worsted yarns are quite busy, especially those making yarns for the knitting trade, both French and Bradford spinners reporting many contracts for delivery in 1914. Spinners of weaving yarns are also fairly well employed on light weight yarns, with business coming in from both the men's wear and dress goods trade, with the men's wear manufacturers buying 2/40s half bloods and 2/50s, the latter trade being the larger buyers at this time.

Prices are so low, the drop in quarter bloods being from 5 to 7 1/2 cents, that most of the manufacturers are under the impression there will be a big business next year. The knitters are contracting for yarns in counts from 2/10s to 2/30s in quantities ranging from 10,000 to 50,000 pounds.

The hosiery manufacturers are calling for 1/20s to 1/40s in worsted and merino. With very few exceptions they have placed their orders for next season. The sweater trade is also beginning to place their contracts for deliveries beginning January 1st on a basis of 72 1/2 to 75 cents dyed for heavy numbers and quarter bloods such as 2/16s, 2/20s, etc. The outlook is very good for another very busy season in sweaters.

The prices reported in our schedules are generally quoted for this year's delivery, but nearly all of the spinners are now taking contracts for yarns to be delivered during the year 1914, at from 2 1/2 to 5 cents per pound under these quotations. They figure that there will be more or less low wools suitable for sweater yarns coming in from abroad under the new tariff. Fine wools show no perceptible decline. These wools and yarns as well are lower in price in this country today than they can be imported under the new tariff. There are many manufacturers who would not be surprised to see a rise in fine wools before March or April next.

Spinners of woolen yarns still continue busy finishing up their orders for the present season, the business coming mostly from the sweater trade. This demand is likely to hold up for another month or so. The business placed has been principally for 2/20 and 2/23 cut yarns with a considerable demand for heavy rovings such as 2/3s, 2/8s and 2/10s with 2/7s all wool and colors at 67 1/2 cents being the average price and the other counts in proportion. These yarns are used for shaker sweaters which are now so popular.

Prices on woolen yarns have eased off a trifle in sympathy with the reduction in price of worsted yarns, as woolen yarns have been selling lately on too high a basis considering the price at which worsted yarns are being offered to the trade today.

There is considerable inquiry from knitters for yarns for delivery beginning January 1st, although not many contracts have been placed. The consumers are holding off, the feeling being that woolen yarns will have to decline in price. If such a decline does take place spinners feel that it will not amount to more than two or three cents per pound.

BRADFORD SPUN YARN

2/16 Ingrain (black)	54
2/16 Ingrain (light grey)	55
2/16 Ingrain (white)	56
2/12 to 2/16 low common	62½-65
2/20 to 2/24 low 1/4	65-67½
2/20 to 2/25 1/4 blood	67½-70
2/26 to 2/28 1/4 blood	68½-71
2/32 1/4 blood	70
2/20 3/8 blood	70-72½
2/26 3/8 blood	72½-75
2/32 3/8 blood	75-77½
2/36 3/8 blood	80
2/40 1/2 blood	87½-90
2/40 delaine	95-1.00
2/50 delaine	1.00-1.02½
2/40 Australian	1.15-1.17½

If you want

Splendid Garnetted Stock

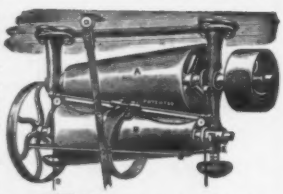
made of
Cotton, Wool or Silk,
the finest the market affords, made by men who are "KEEN" after the work—who delight in doing it right—
Then write GRAVES for samples.

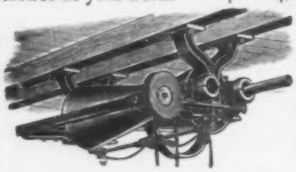
Frank B. Graves Co.
34 Arch Street, Albany, N. Y.

Variable Speed Countershafts

The Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.





We'll furnish them for either floor or hanging use.

Over Ten Thousand Sets in Operation in this Country and Europe.

Send for Catalogue.

EVANS FRICTION CONE COMPANY
G. Frank Evans. Newton Center, Mass.

2/50 Australian	1.25-1.27½
2/60 Australian	1.35-1.37½
3/28 luster	95
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½
1/24 worsted and 80s single cotton for raincloths	1.20-1.25
1/24 worsted and 120 single cotton for raincloths	1.05-1.10

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	65
1/30 50/50 White Merino Cop	67
1/40 50/50 White Merino Cop	70
1/20 60/40 White Merino Cop	68½
1/30 60/40 White Merino Cop	70½
1/40 60/40 White Merino Cop	73½
1/20 70/30 White Merino Cop	71½
1/30 70/30 White Merino Cop	73½
1/40 70/30 White Merino Cop	77
1/20 80/20 White Merino Cop	74
1/30 80/20 White Merino Cop	76
1/40 80/20 White Merino Cop	78
Sliver and Sanitary Mixes	3c. more
Coning on 1/20	2c. more
Coning on 1/30	3c. more
Coning on 1/40	4c. more

FRENCH SPUN YARN

1/20 1/4 blood	65
1/20 high 1/4	67½
1/20 3/8	75
1/20 high 3/8	76-78
1/20 1/2 blood	80
1/30 1/2 blood	82
1/40 1/2 blood	84
1/50 delaine	95-97½
1/40 Australian	1.12-1.15
1/50 Australian	1.17½-1.20
1/60 Australian	1.30-1.32½
1/70 Australian	1.40-1.42½

For two ply Knitting Twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

KNITTING YARNS

Dyed and Bleached—Bradford System

2/7s straight 1/4 blood	72½
2 and 3 ply 10s-15s straight 1/4 blood	75
2 and 3 ply 16s-20s straight 1/4 blood	75
2 and 3 ply 20s-24s straight 1/4 blood	77½-80
2 and 3 ply 24s-28s straight 1/4 blood	80

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	57½-60
2/20 Light Grey Mixed	90%	10%	60-62½
2/20 Light Grey All Wool			65
2/20 Colored All Wool			65-67½
2/20 Bleached	80%	20%	67½-70
2/20 Bleached	90%	10%	70-72½
2/20 Bleached All Wool			75-77½

2/23 Colored All Wool	67½-70
2/23 Bleached 90/10	70-72½
2/23 Bleached All Wool	75-77½
2/25 Light Grey Mixed All Wool	85-87½
2/25 Bleached All Wool	90-92½

THE RAG AND SHODDY MARKET

Business in rags, shoddy and wool waste is held up by the delay in putting schedule K of the new tariff into effect. Buyers are delaying placing their orders, thinking that the removal of the duties from wool and wool wastes on December 1 will bring about the much-talked of reduction in prices. In this they will probably be disappointed, nevertheless they are holding off and as a result the market for rags, shoddy and waste is extremely dull. Cotton waste is firmer in sympathy with the advance in raw cotton. The export of woolen rags for September show a marked decrease. The figures for export from Boston are 548,920 pounds, valued at $12,923, as compared with 1,045,604 pounds valued at $32,026 in August. We quote as follows:

SHODDIES AND EXTRACTS

White yarn, best all wool	47-50
White knit, all wool, best fine	30-40
White, knit, No. 2	23-30
Light yarn, extra fine	36-36¼
New pure indigo blue	24-27

Merino

Fine light, all wool	21½-23½
Medium light, all wool	19½
Fine black, all wool	18-22
Fine dark, all wool, best grade	18-20
Medium dark, all wool, No. 2	14-16
Red knit stock, strictly all wool	21-25
Red flannel, all wool	20-22
Dark blue for hosiery, strictly all wool, No. 1	20-23
Dark blue for hosiery, not all wool, No. 2	13-15

NEW WOOLEN RAGS

Fine merchant tailors	7-8
Choice light colors	7-8½
Browns	12½
Blacks	6
Blues	10
Fine dark	7-12½
Medium dark	4-5

Serges

Black	10½
Blue	10-11

Flannels

Very light	18-19
Mixed	10-11
Black	7-8

SOFTS AND KNIT STOCK

Soft woolens, best	5-6
Old white flannels	11-14
Old red flannels	10-11
Old blue flannels	3-5
Old plaids	4½
White stockings	20-24½
Clear dark hoods	7-8½
Light hood stock	13-14

MILL NEWS

*New York, New York City. Orders have been placed by Boyd & Co. for full fashioned silk hosiery machines to be installed in their new factory in the Bronx. It was noted in September that

Pennsylvania. Lebanon. Twenty-one new knitting machines are being installed in the plant of A. R. Kreider & Bro., located at 9th St. and Reading Rd. This plant manufactures men's and women's cotton and silk seamless hosiery and is a branch of the main plant at Annville.

*Pennsylvania, Mt. Carbon. A mill is built here by the Leaman Knitting Mills of Tamaqua, a small women's knit underwear plant established last July by Charles H. Leaman of Tamaqua. There will be no increase in the machinery for the present. In an earlier report it was stated that the business would be moved from Tamaqua to manufacturing silk underwear fabrics, was considering adding a hosiery department and installing from 35 to 50 full fashioned hosiery machines. this concern, which recently started a plant for Pottsville, but as noted above the new location is Mt. Carbon, just below Pottsville.

Unproductive Dollars

Spent for gallons of oil which spatter from shafting, goes astray from oil cans, flings off all textile machinery

May Be Saved

endless staining of goods may be obviated, clean workrooms will result by applying

TRADE MARK REGISTERED
NON-FLUID OIL
UNITED STATES PATENT OFFICE

to places now lubricated with fluid oil. Non-Fluid Oil offers many other vital improvements over oil lubrication. They do all that the best fluid oils do except drip and spatter. Ask to be shown at our expense.

Address DEPT. H

New York & New Jersey Lubricant Co.
165 Broadway, New York

CHENEY SILK YARNS

Meet Every Demand for Quality

The demand for quality in silk yarns is greater to-day than ever. Manufacturers who desire the finest silk yarns procurable are invited to investigate the well-known merits of Cheney Silk Yarns.

For years our silk yarns have been considered the very best by manufacturers of silks and silk-mixture goods.

The Cheney Yarn Mills, the largest of their kind in the country, with their complete equipment, enable us to fill all orders for standard silk yarns promptly.

We also make a specialty of supplying standard silk yarns to individual orders for every manufacturing purpose.

Quotations and samples on request.

Cheney silks are of superior quality, and include practically every kind of goods made of silk—whether for dresses, millinery, decoration or upholstery, the haberdasher or manufacturer, man or woman.

CHENEY BROTHERS, *Silk Manufacturers*, 4th Ave. and 18th St., New York

National Silk Dyeing Co.

Main Office, PATERSON, NEW JERSEY, 140 Market Street

NEW YORK SALESROOM, 60 UNIVERSITY PLACE

Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The silk market is in a very erratic condition, prices advancing one day and receding the next. This is owing to the fact that there is so much silk on hand in Yokohama that reelers feel inclined to dispose of their silk at a lower price rather than to carry it. It is reported that there has never been so much of the raw product used in this country and elsewhere as there has in the past three months, but manufacturers are not buying in very large quantities, preferring to wait for the market to recede.

There has been a ten per cent. decline in the market since September. This is said to be caused by an over production of the raw silk. Bankers do not wish to advance money very freely.

In Yokohama, the market is reported as very weak and very few sales recorded, although there is much silk being used in the European silk centers. Manufacturers are hoping for a lower price and are playing a waiting game.

In Italy and France it is reported that the crop has been unusually small. It has been found that the production of the raw product in these countries has not been a paying investment in recent years, it being much cheaper to import raw silk from other countries than to try to raise it. In Canton, China, the market has declined to some extent.

Manufacturers in this country are reported very busy. Although they are not in the market buying very much of the raw product, it is predicted that in the very near future they will be obliged to buy in large quantities as the demand for the finished product for the spring season is very active.

The broad silk and ribbon manufacturers are very busy on fall and spring novelties. In broad silks, crepes and crepe effects, poplins, bengalines, and all soft finished silk goods are very popular and manufacturers in these lines are having a prosperous season.

It is believed that cotton and knitting manufacturers, while not buying so much of the raw product at the present time, will again be in the market buying in large quantities. They are using so much of the raw product that their stocks are naturally getting depleted.

All predict a very good business for the coming season in the silk industry and it is probable that there will be quite a sharp advance for the raw silk before the first of the year.

The tussah silk market is weakening. This is probably caused by the fact that manufacturers are not using as much of this product as formerly. It is thought by many that this condition will change for the better before a great while and much tussah will be used.

The following are prices current:

VILLA, STEARNS COMPANY
Telephone, 6174 Gramercy
American Woolen Building
221 Fourth Avenue, New York
RAW AND THROWN SILK
Silk on Spools, Cones, Quills, Beams
DYED SILK FOR ALL PURPOSES
Philadelphia Office:
538-40 N. Third St.
Providence Office:
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THE EMMERICH-DOLSON CO.
MANUFACTURERS OF THROWN SILKS
DYED SILKS FOR ALL TRADES A SPECIALTY DELIVERED IN SKEINS, ON CONES, SPOOLS, TUBES AND WARPS
DEALERS IN SPUN SILKS, WORSTEDS, ARTIFICIAL SILKS
PATERSON OFFICE, 49 HAMILTON ST. 'PHONE 2159 PATERSON
215-219 FOURTH AVENUE, NEW YORK
'PHONE 2212 STUYVESANT

Spun Silk Yarns

For All Purposes

Champlain Silk Mills

500 Driggs Avenue

Brooklyn, N. Y.

OFFICES:
New York, 38 East 25th St.
Prov., R. I., Industrial Trust Bldg.

MILLS:
Brooklyn, N. Y.
Whitehall, N. Y.

SAUQUOIT SILK MFG. CO.

INSULATING AND BRAIDING SILKS

ORGANZINE, TRAM AND HOSIERY SILKS

Fast Dye Organzines for Woolen Manufacturers a Specialty

Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa. New York Representative, Wm. Ryle & Co., 225 Fourth Ave.
Philadelphia Office, 4015 Clarissa St., Nicetown
Chicago Office, 206 So. Market St. Boston Office, 78 Chauncey St.

KROUT & FITE MANUFACTURING CO.,

MANUFACTURERS OF

Silk, Cotton and Mercerized Narrow Fabrics

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No. 167 Ward Street, Paterson, N. J.

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CARE E. GERLI & CO., 119 E. 27th STREET

All Frames Equipped with Latest Improvements, Particularly W. & R. Oscillating Reed Motion,
The Latter Assuring Complete Relief to Strain on Silk

GOODS FULLY INSURED BY FIRE. PROMPT SERVICE GUARANTEED.

Raw Silk Warping a Specialty.

European

Grand Extra Classical Piedmont 12/14	5.00-5.10
Extra Classical Italian 12/14 12/16	4.85-4.90
Classical Italian 13/15 24/26	4.75-4.80
Best No. 1 Italian 13/15 24/26	4.65-4.70

60 days' basis

Japan

Filature Kansai Extra Extra 13/15	4.25-4.30
Filature Kansai Extra 13/15	4.05-4.10
Filature Shinshu Extra 13/15	4.05-4.10
Filature Kansai Best No. 1 13/15	3.97½-4.02½
Filature Kansai No. 1 13/15	3.90-3.95
Filature Shinshu No. 1 13/15	3.85-3.90
Rereels No. 1 13/16	3.95-4.00
Rereels No. 1 1/2 13/16	3.95-4.00
Rereels No. 1 1/2-2	3.80-3.85

Six months' basis

China

Canton XXA 14/16	3.75-3.80
Canton XXB 14/16	3.60-3.65
Tsatlee Blue Dragon and Flying Horse	3.50-3.55
Tsatlee Kum Kee Mars No. 1	2.90-2.95
Tussah Filature Eight Cocoon No. 1-2	1.82½-1.87½

Six months' basis

SPUN SILK

This industry is enjoying a period of prosperity of which there seems to be no limit and the manufacturers are running on full time and selling much of the product. Orders are being booked ahead, as per our last report, and it is thought that the consumption of this product will be very large for several months to come. The prices follow, which are the same as our last quotation:

60/2	3.50
50/2	3.40
40/2	3.30
30/2	3.15
20/2	3.05
10/2	2.95

ARTIFICIAL SILK

The demand for artificial silk remains about the same as at our last report. Manufacturers are enjoying a fairly good business and are optimistic as to the future. The tariff question now being settled, it is hoped that the business in this product will increase to quite a large extent before the first of the year. It is predicted by many that much artificial silk will be used. No change in the quotations since our last report:

150 Deniers First Quality European	1.95
150 Deniers Second Quality European	1.85
150 Deniers Elberfeld Raw	1.75
150 Deniers Chardonette Natural	1.90

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YARNS FOR ALL PURPOSES
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Raw, Thrown and Dyed Silks

Silk on Quills or Beams. Hosiery Silk on Cones

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"Cascami"

Schappe, Spun Silk, Cordonnets for Sewing in Skeins—on Cops—Spools —Cones—Beams.
In Gray or Dyed.
Special attention to regularity of sizes.

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Sole Agents for the United States and Canada

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Tel. 10080 Madison Square **Mills: Passaic, N. J.**

United States Conditioning & Testing Company

Cotton, Wool and Silk Conditioning
Fabric Testing and Chemical Analyses

Offices and Laboratories, 340-44 Hudson St., (cor. Charlton St.)
NEW YORK
D. E. Douty, Mgr. F. G. Boye, Supt. K. B. Lamb, Chem. Eng.

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Also Power Transmission Supplies for General Mill Use

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Don't move in the same old rut all your life without ever advancing to better work or better salary. You can secure in your own home, in your spare time, and without leaving your present work, the most powerful force for promotion in the world. Thousands have obtained increased earnings through the I. C. S. Write us a postal today, stating the position you would like to obtain. Advice of experts and booklet free.

International Correspondence Schools
Box 882, Scranton, Pa.

SILK MILL NEWS

New Jersey, Franklin. A 2-story brick building owned by the New Jersey Zinc Company has been leased for a term of years by Frost & Van Riper, Inc., silk throwsters with plants at Paterson and at Pittston, Pa. James Clark, who has been at the Paterson plant for a number of years, is superintending the installation of machinery and expects to have the plant ready for operation inside of a month. Employment will be given to about 75 hands. It is reported that Frost & Van Riper, Inc., have leased another building in Franklin which they propose to use as a mill.

New Jersey, Paterson. D. Hillman has started a small plant with 10 broad silk looms in the Essex Mill, on Mill St.

New Jersey, Paterson. The Jefferson Silk Mills, a new concern, has installed 8 broad silk looms in a room in the Essex Mill on Mill St.

New Jersey, Phillipsburg. A new commission winding and warping concern has started up here at 55 Sitgraves St. under the name of the National Warping Co. Alphonse Lova and Leonard Orcukto are the proprietors.

Pennsylvania, Philadelphia. The buildings at 3rd and Ontario Sts., which were formerly occupied by Long Bros. Co., have recently been taken over by the Manhattan Silk Co., 95 Madison Ave., New York, who will install a number of new looms built by Schaum & Uhlinger, to be operated on silk ribbons.

*Connecticut, Watertown. Machinery is being removed from the old factory of M. Heminway & Sons Silk Company to the new plant recently completed. The machinery at the Waterbury branch is soon to be moved to Watertown and the entire business consolidated in the new plant.

Maryland, Hagerstown. An addition is being built to the dye house of Cromer Bros., manufacturers of silk ribbons and silk throwsters, which will be 39 by 40 feet. It is expected this enlargement will be finished by December 15.

Massachusetts, Becket. The Berkshire & Becket Silk Company will install an electric generator. Electric lights are to be installed.

Massachusetts, New Bedford. The Gilt Edge Silk Mills have bought the plant on Kempton St., which they occupy, from the Crescent Mfg. Company at a price stated to be between $32,000 and $35,000. The Gilt Edge Silk Mills organized a year ago last June and for the past year and a half have leased the plant. The transfer is to take place at the termination of the present lease on November 1. Samuel Goldfarb, the superintendent, states that they expect to enlarge the plant, but as yet have no definite plans. Within the next two or three years it is expected that present equipment of 107 looms will be increased to at least 300 looms.

New Jersey, Burlington. Thirty-six broad silk looms are being added to the equipment of the Burlington Silk Mills, Inc. There is room in the present plant for this additional equipment, also for a further increase which may be made in the near future.

SILK MILL NEWS

New Jersey, Paterson. A large number of old looms in the plant of the Phoenix Silk Mfg. Company are being replaced with new looms, with capacity of 36 harnesses and wide enough to make the widest broad silks now called for.

New Jersey, Paterson. Space in the Addy Bldg., on Ryle Ave., recently vacated by the Metric Shirt Company, has been leased by the National Silk Company who will install new looms.

New Jersey, Paterson. The Crescent Silk Company, Ramapo Ave., have ordered 20 broad box looms. This equipment will entirely fill the present space.

*New Jersey, Paterson. A permit has been granted E. & Z. Van Raalte, manufacturers of veilings, nettings and chiffons, to erect a 4-story mill, 61 by 154 feet. This addition will be an extension of the present manufacturing facilities.

New Jersey, Paterson. Wm. Clarkson, a manufacturer of broad silks at 24 Southard St., operating eight looms, plans to make an increase. Mr. Clarkson was a partner in the Holt Mfg. Co., making Turkish towels and Terry novelties up to two years ago, when he began business for himself weaving broad silks.

New Jersey, Philipsburg. An increase is being made at the plant of Reynolds & Tirrell, who operate a small plant on broad silk goods at Jersey and Sitgraves Sts.

New Jersey, Trenton. Enlargements are being made by the Scientific Textile Company which will double the present size. They have just completed a new store room, vaults, and preparation room, 60 by 100 feet. This concern does a general winding business, making a specialty of raw silks for the New England fine goods trade. Henry Kellerman is treasurer and general manager, and E. H. Kellerman is secretary.

New York, Binghamton. An addition of 50 looms to the present equipment of the Rossville Silk Mills Company is planned. Broad silks, dress fancies and mufflers are manufactured. A number of weavers were recently secured from Scranton, Pa. Additional space has been rented for the new equipment.

Pennsylvania, Altoona. Looms are being transferred from the local plant of Schwarzenbach, Huber Company to the plant at Juanita, and winding and warping machinery is being moved from the latter place to Altoona. This change is being made with a view of concentrating operations in the different branches of the Schwarzenbach, Huber Company.

*Pennsylvania, Carlisle. R. N. Beetem & Co., manufacturers of black and colored taffeta ribbons, are operating some machinery in their new factory building at College and B Sts., although the building is not completed. When fully equipped the new plant will give about 100 per cent. increase over the old plant. The new mill is a 2-story structure, 64 by 100 feet.

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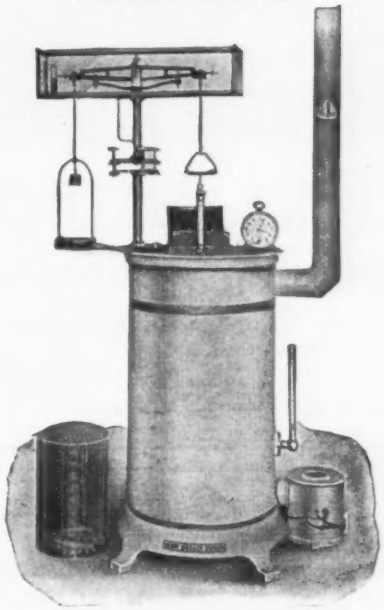
Is an Electric Conditioning Oven with Motor-driven Fan



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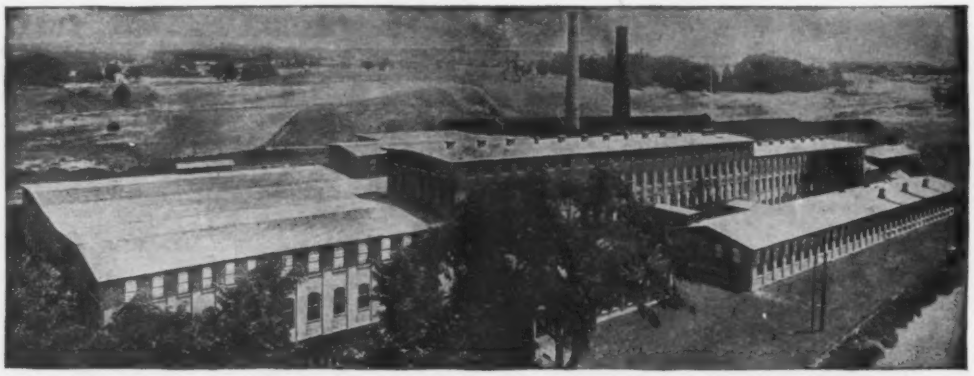

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Sheetings, Shirtings, Lawns, India Linons.
Everything in White Goods.
Capacity, 30 Tons Daily

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Most perfect and practical working
Pound for Pound Substitute for Cream of Tartar
Used with chrome for the mordanting of wool. Makes fast and permanent color. Finest, softest finish. Very considerable saving in cost. Sample and booklet on application free.
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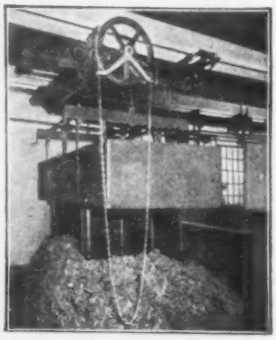
Even coloring is no longer the greatest problem in dyeing raw wool.

The waste account and injury to the stock are most important.

Of course, the condition of your stock is satisfactory, but is it equal to your competitors'? What about your cost of dyeing, compared with theirs?



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HUSSONG DYEING MACHINE CO. Croveville N. J.

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ASSETS January 1, 1913 ..... $33,406,434.60
LIABILITIES (Except Capital) 14,254,679.00
SURPLUS AS REGARDS POLICY HOLDERS.. 19,151,755.28
Losses Paid Since Organization over..... 139,000,000.00

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OWNERS OR TENANTS may have for the asking proper advices in relation to the FIRE HAZARD and the Value of Automatic Sprinkler and other protection for the manufacturing or distributing plant. Correspondence invited by the DEPARTMENT OF IMPROVED RISKS 56 CEDAR STREET, N. Y.

DYESTUFFS AND CHEMICALS

Acetic, 100 lbs.	2.16-2.56
Citric, domestic	39
Copperas	65-80
Oxalic	8-9
Sulphuric, 66°, 100 lbs.	1.00-1.25
Muriatic, 18°	1.15-1.65
Tartaric crystals	30-33

Miscellaneous Chemicals and Dyestuffs

Acetate of lime, gray, 100 lbs.	2.50-2.60
Alum, lump	1.75-1.90
ground	1.85-2.00
powdered	3.00-3.15
Aqua ammonia, 26°	2-6½
Borax	3-5
Cream tartar, crystals	23½-25
Fuller's earth, powdered, ton	18-20½
Glauber's salt	75-85
Potash, chlorate, crystals	8-9
powdered	9-14½
carbonate	3-6½
Soda, bicarbonate	1.15-1.50
Soda, caustic, domestic, 60 per cent.	1.80-1.91
Sal., American	65½-85½
Vitriol, blue	4.76-5.00
Acetate of soda	4½-6½
Acid, picric, best crystals	70-75
tannic, commercial	36-37
Albumen, egg	42-65
blood	22½
Aniline, Oil	10
salt crystals	8-9
Alizarine	15-16
Bichromate of potash, American	7-9
Bichromate of soda	4-7
Bisulphite of soda	75-1.25
Cutch, bales	5½-8½
Dextrine, imported potato	4-7
Divi-divi, ton	33-47

FIRES.

Massachusetts, Fall River. Fire in the picker room of the Heywood Narrow Fabric Company damaged a picker and several bales of cotton.

Massachusetts, Millbury. Fire damaged the shoddy plant operated by John S. Rich with loss of about $1,000.

New Hampshire, Laconia. A small fire in the card room of the Belknap Mills Corp. was controlled by the employes with slight loss.

New York, Buffalo. Fire damaged the plant of the Hard Mfg. Company, makers of bedding, mattresses, etc. The loss is about $7,000.

New York, Waterford. Fire which originated in a drying machine in the plant of the Waterford Woolen Company, manufacturers of shoddy, badly damaged the mill with loss on machinery, buildings and stock of about $5,000. It is understood that repairs will be made at once. This is a new concern organized less than a year ago. Five sets of cards and 3 pickers were operated on wool shoddy. The equipment includes carbonizing and dyeing equipment, steam and electric power equipment. The capital stock is $20,000. O. A. Saeltzer is president and buyer and H. B. Brooks is treasurer.

The WM. H. LORIMER'S SONS CO.,

MERCERIZERS AND DYERS

Manufacturers of

MERCERIZED YARNS

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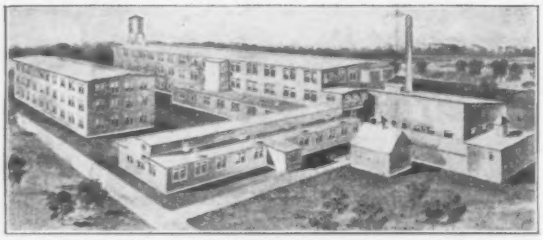
HOME BLEACH AND DYE WORKS, Inc.



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COTTON YARNS

IN SKEIN, AND LONG AND SHORT

CHAIN WARPS

FAST COLORS A SPECIALTY

Daily Capacity 20 Tons

FAST COLORS AND BLACK FOR WORSTED TRADE

Office and Works, Pawtucket, R. I.

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Dyers of Peerless Black on Artificial Silk.

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MILL NEWS

Pennsylvania, Emlenton. The Richland Woolen Mills, A. E. & J. O. Conn, proprietors, were totally destroyed by fire in September. As noted in another part of this issue, Messrs. Conn have organized a new concern at Parkers Landing under the name of the Parker Woolen Mills.

Pennsylvania, Philadelphia. The Colonial Towel Mills, operated by W. H. & A. E. Margerison at Emerald and Sargent Sts., on Turkish towels and terry cloths with 75 broad and 48 narrow looms, were recently damaged by fire to the extent of $20,000. necessitating a temporary shut down of the plant until the damaged portions can be repaired.

Pennsylvania, Philadelphia. Fire has destroyed the four-story mill building occupied by the Miller Waste Manufacturing Co., located at 2006 Hazzard St. The loss is estimated at $35,000.

Rhode Island, Woonsocket. Automatic sprinklers in the picker room of the Rathbun Knitting Company extinguished a fire with slight loss. The plant is running as usual.

Vermont, Bennington. The plant of the E. Z. Waist Company has been totally destroyed by fire with loss estimated at from $75,000 to $100,000. The insurance is $60,000. The fire started on the roof of the main mill and on account of the lack of fire fighting apparatus it was impossible to check the flames. The concern has not decided regarding rebuilding and if a suitable plant can be secured in another location the business will probably be moved from Bennington. Sixty-five latch-needle knitting machines and 68 sewing machines were operated on the E. Z. children's knitted underwaists. G. W. Clark is president, F. E. Haight, N. Y., secretary. A. S. Haight & Company, N. Y., are the selling agents.

*Pennsylvania, Olyphant. The addition to be built for D. G. Dery, plans for which are being drawn by G. N. Edson, an architect located in the Connell Bldg., Scranton, is an enlargement of the throwing plant at Olyphant. This plant was purchased in March and was formerly operated by the Alfred Harvey Silk Company. The addition doubles the size and the capacity of the mill. It was reported previously that this enlargement would be built at Blakeslee,. Pa. The main office of D. G. Dery is in the Allentown National Bank Bldg., Allentown, Pa.

Pennsylvania, Scranton. A new roof is to be put on one of the buildings of the Sauquoit Silk Mfg. Company and the contract has been awarded. The new roof will be 45 by 250 feet with a skylight running the entire length of the building. The cost will be approximately $10,000.

A. KLIPSTEIN & CO.

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Devoted exclusively to single cloths, the construction and combination of simple and special weaves, the structure of standard cloths, the theories of colour and application of colours to textile fabrics; the designing of ordinary figured fabrics forms an important section

Compound and special cloths are fully dealt with in "Advanced Textile Design" by the same author.

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PARANITRANILINE
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Are Recognized as Standard

THE Barrett Specification prescribes the exact procedure for using pitch, tarred felt and gravel (or slag) so as to make the most economical and satisfactory roof known, and defines with precision the proper quantity and quality of materials to be used.

The procedure demanded is the one which gives the least chance for careless workmanship.

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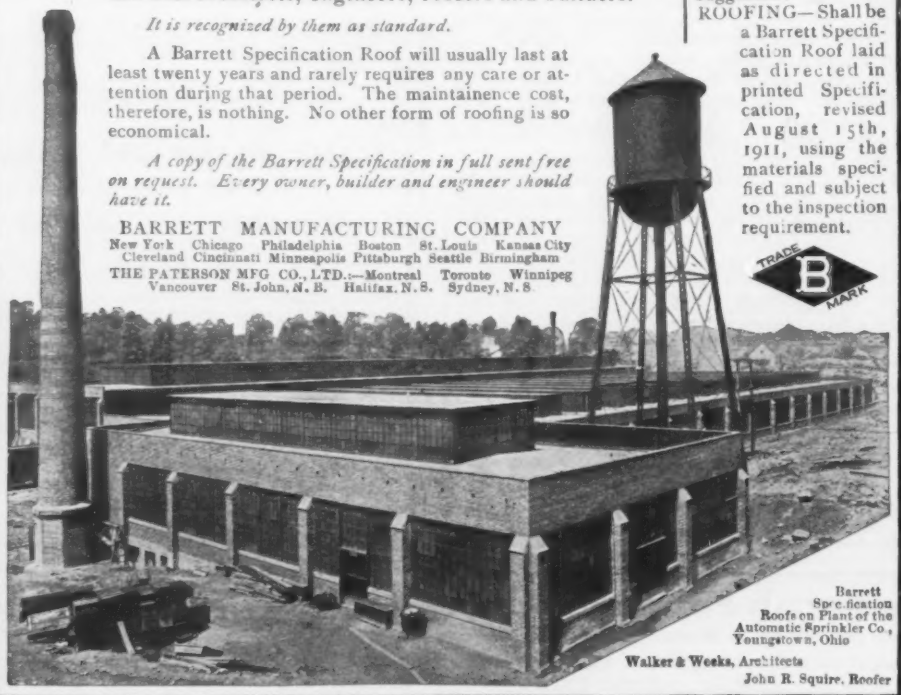
Special Note

We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.
If any abbreviated form is desired however, the following is suggested:
ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15th, 1911, using the materials specified and subject to the inspection requirement.

TRADE B MARK



Barrett Specification Roofs on Plant of the Automatic Sprinkler Co., Youngstown, Ohio
Walker & Weeks, Architects
John R. Squire, Roofer

MILL STOCKS

FALL RIVER MILLS

	Par Value.	Bid.	Asked.
American Linen Co.	100	...	75
Arkwright Mills	100	...	70
Barnard Mfg. Co.	100	...	...
Bourne Mills	100	...	110
Border City Mfg. Co.	100	...	98½
Chace Mills	100	...	...
Charlton Mills	100	80	...
Cornell Mills	100	101	150
Davol Mills	100	85	...
Davis Mills	100	...	86
Flint Mills	100	90	...
Granite Mills	100	...	...
Hargrave Mills	100	50	...
King Philip Mills	100	...	...
Laurel Lake Mills	100	...	125
Lincoln Mfg. Co.	100	...	95
Luther Mfg. Co.	100	...	155
Merchants' Mfg. Co.	100	...	90
Mechanics' Mills	100	...	88
Narragansett Mills	100	105	111
Osborn Mills	100	...	104
Parker Mills	100	50	...
Pocasset Mfg. Co.	100	...	100
Amoskeag Mfg. Co., pfd., N. H.	100	96	
R. Borden Mfg. Co.	100	115	120
Sagamore Mfg. Co.	100	162	...
Seaconnet Mills	100	...	63
Shove Mills	100	...	78
Stafford Mills	100	80	82
Stevens Mfg. Co.	100	114	116
Tecumseh Mills	100	95	102
Troy C. & W. Mfg.	500	...	...
Union Cot. Mfg. Co.	100	...	...
Wampanoag Mills	100	...	85
Weetamoe Mills	100	...	87

OTHER NEW ENGLAND MILLS

	Par Value.	Last Sale.
Amoskeag Mfg. Co., com., N. H.	100	60
Androscoggin Mills, Me.	**100**	**135¼**
Arlington Mills, Mass.	100	85¼
Appleton Co., Mass.	**100**	**172**
Atlantic Cotton Mills, Mass.	100	40½
Bates Carpet Co., Me.	**100**	**252¼**
Bigelow Carpet Co., Me.	100	145⅝
Boott Mills	100	98½
Boston Duck Co., Mass.	700	1350
Boston Mfg. Co., Mass.	**100**	**105¼**
Cabot Mfg. Co., Me.	**100**	**120**
Chicopee Mfg. Co., Mass.	**100**	**90**
Continental Mills, Me.	100	75
Dwight Mfg. Co., Me.	500	1060
Edwards Mfg. Co.	**100**	**99**
Essex Co., Mass.	**100**	**190**
Everett Mills, Mass.	**100**	**110**
Fisher Mfg. Co., Mass.	100	125⅛
Franklin Co., Me.	**100**	**205**
Great Falls Mfg. Co., N. H.	**100**	**175½**
Hamilton Woolen Co., Mass.	100	95
Hamilton Mfg. Co., Mass.	100	81¼
Hill Mfg. Co., Me.	**100**	**90¾**
Jackson Co., N. H.	1000	985
Lancaster Mills, Mass.	**100**	**85**
Lawrence Mfg. Co., Mass.	100	150¼
Lockwood Co., Me.	100	103⅜
Lowell Bleachery, Mass.	**100**	**129½**
Lowell Hosiery, Mass.	**100**	**40**
Lyman Mills, Mass.	100	117
Massachusetts Cotton Mills, Ga.	100	93¾
Massachusetts Cot. Mills, Mass.	100	108
Merrimack Mfg. Co., com., Mass.	100	29
Merrimack Mfg. Co., pfd., Mass.	**100**	**85**
Middlesex Co., Mass.	100	58½
Monadnock Mills, N. H.	1000	1000
Nashua Mfg. Co., N. H.	**500**	**550**
Naumkeag Steam Cot. Co., Mass.	100	135
Newmarket Mfg. Co., N. H.	**100**	**95**
Otis Mfg. Co., Mass.	**1000**	**1852½**
Pacific Mills, Mass.	100	108¼
Pepperell Mfg. Co., N. H.	100	295¼
*Plymouth Cordage Co., Mass.	100	212¼
Salmon Falls Mfg. Co., N. H.	**300**	**150**
Shaw Stocking Co., Mass.	**100**	**75**
Suncook Mills, N. H.	**100**	**20**
Thorndyke Mfg. Co., Mass.	**1000**	**1750**
Tremont & Suffolk Mills, Mass.	100	95¾
Waltham Bleachery & Dye Works, Mass.	**100**	**129**
York Mfg. Co., Me.	**100**	**85¼**

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	134½	...
Beacon Mfg. Co., com.	102½	...
Beacon Mfg. Co., pfd.	...	115
Booth Mfg. Co., com.	...	30
Booth Mfg. Co., pfd.	...	60
Bristol Mfg. Co.	65	...
Butler Mfg. Co.	...	90
City Mfg. Co.	...	90
Dartmouth Mfg. Co., com.	205	215
Dartmouth Mfg. Co., pfd.	98	...
Gosnold Mfg. Co., pfd.	85	88
Grinnell Mfg. Co., pfd.	167½	...
Holmes Mfg. Co., com.	96	100
Holmes Mfg. Co., pfd.	100	101
Kilburn	110	120
Manomet	...	115
Nashawena Mills	...	63½
N. B. Cotton Mills Co., com.	100	94
N. B. Cotton Mills Co., pfd.	...	99
Neild Mfg. Co.	90	...
Nonquitt Spinning Co.	85	...
Page Mill	...	77½
Pierce Mill	300	325
Pierce Bros., Ltd.	100	...
Potomska Mills	112	...
Quissett Mills	89	...
Quissett Mills, pfd.	102	100
Sharp Mfg. Co., com.	...	85
Sharp Mfg. Co., pfd.	102	...
Soule	...	79
Taber Mill	...	100
Wamsutta Mills	120	...
Whitman Mills	...	122½

SOUTHERN MILLS

	Bid.	Asked.
Abbeville	85	100
American Spinning Co.	155	...
American Spinning Co., pfd.	100	...
Arkwright Mills	...	100

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Adjustable Thread Guide

Cheapest to Buy

Cheapest to Install

Easiest to Adjust

Absolute and Rigid Adjustment

Mail Guide Block for Free Sample

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THE I. E. PALMER CO.

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AND

Twisting

OF

COTTON

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NOW AT

32 Union Sq., New York, N. Y.

Avondale	120	126
Brogon Cotton Mills (new series)	...	81
Brookside	...	112
Cannon	150	...
Cabarrus	150	...
Chadwick-Hoskins	...	80
Chadwick-Hoskins, pfd.	...	101
Chiquola Cotton Mills, pfd.	80	...
Clifton, com.	80	...
Clifton, pfd.	96	100
Clara	100	...
Cliffside	190	...
Clinton	...	120
Columbus Manufacturing Co.	...	85
Darlington	75	82½
Drayton	...	90
Erwin, pfd.	105	...
Easley	...	185
Exposition	...	210
Florence	125	128
Gaffney Manufacturing Co.	59	76
Gluck	...	100
Graniteville, S. C.	140	152
Grendle	...	96
Glenwood	...	150
Highland Park	186	...
Highland Park, pfd.	...	102
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	141
Inman, com.	...	108
Inman, pfd.	...	100
J. P. King Manufacturing Co.	77½	79
Kesler	150	165
Lancaster Cotton Mills	130	...
Lancaster Cotton Mills, pfd.	96	...
Lanet	...	112
Laurens	127	136
Lockhart, S. C.	...	72½
Loray Mills, pfd.	...	96
Modena	...	100
Mollohon	...	101
Monarch, S. C.	115	...
Newberry	125	...
Norris Mills	...	121
Ninety-Six	130	140
Orr	86	...
Ozark	100	...
Parker Mills, com.	15	20
Parker Mills, pfd.	44	60
Parker Mills, guar.	85	100
Pacolet Manufacturing Co., pfd.	100	101
Patterson	129	...
Pelzer Manufacturing Co.	125	164
Piedmont Manufacturing Co.	150	167
Pell City, Ala.	...	80
Poe, W. F., Manufacturing Co.	...	110
Riverside Manufacturing Co.	...	78
Roanoke Mills	...	153
Saxon	114	...
Spartan	107	...
Toxaway	...	78
Union Buffalo, first pfd.	34	51
Union Buffalo, second pfd.	...	10
Warren Mfg. Co., com.	78	...
Warren Mfg. Co., pfd.	...	107
Washington Mills	...	20
Washington Mills, pfd.	...	100
Woodside Mills Co., com.	40	...

Woodside Mills Co., pfd.	34	85
Woodside Mills Co., guar.	...	101
Watts	...	85
Williamson	...	125
Ware Shoals	75	85
Whitney	110	120
Wiscasset	135	150
Woodruff	...	100

* Ex dividend.

MILL NEWS

*Pennsylvania, Knoxville. A company has been organized under the name of the Pioneer Mfg. Company and a plant will be established to manufacture gloves, mittens and other knit goods. The capital stock is placed at $5,000. John E. Davis, Guerney E. Davis and Fred Walker are interested. This is probably the result of the movement to organize a hosiery company which we recently noted.

Pennsylvania, Philadelphia. A plant for the manufacture of sweater coats has been equipped at 736 Passayunk Ave. by Messrs. Miller & Son. They are selling direct.

Pennsylvania, Philadelphia. Woolman Bros., with an equipment of 5 knitting machines, have started up a plant for the manufacture of silk neckties at 44 North Fourth St., the production to be sold to the retail trade.

Pennsylvania, Philadelphia. Under the name of the Philadelphia Sweater Mills, Kaplan, Karp & Reizen are equipping the building in the rear of 218 Arch St. with 10 flat knitters and 8 sewing machines, on which they will manufacture a line of sweater coats. They will sell direct. Buy woolen and worsted yarns.

*Pennsylvania, Tower City. H. A. Trautman will begin manufacturing women's underwear in a building on Grand Ave. about the middle of November, with six knitting machines and six sewing machines under the name of H. A. Trautman Knitting Mills. 26s carded peeler yarn will be bought.

*South Carolina, Union. J. H. Gault will be president, treasurer and manager of the new Gault Mfg. Company, recently chartered as noted with capital stock of $10,000. Plans have been made for two frame buildings, 170 by 40 feet, and 32 by 32 feet, to be equipped with hosiery knitting machinery, steam and electric power equipment, dyeing and finishing machinery, etc. Men's and women's hosiery will be made at first. B. A. Jacobs & Co. will sell the product. Mr. Gault was formerly president and treasurer of the Excelsior Knitting Mills of Union.

*Tennessee, Chattanooga. The new mill to be built at Ridgedale, a suburb of Chattanooga, by the Davis Hosiery Mills will be known as the Madeline Hosiery Mills. It will be operated as a branch of the Davis Hosiery Mills. As noted in a previous report contract has been awarded for a 2-story mill, 200 by 64 feet, of brick construction. About 400 hands will be given employment. H. L. Huntington of Chattanooga is the architect, and Mark K. Wilson is contractor. Electric power will be used.

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Mill White

Turns darkness into light, which means maximum efficiency from your mill. It stays white where others turn yellow. It saves artificial light bills. It will not crack nor scale, and is not affected by any ordinary vibration, expansion or contraction.

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are so liberally designed and so sturdily constructed that they will operate for years without need of repairs providing they are properly supplied with oil while in service.

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Otherwise your cost will be too high and best possible results not obtained.
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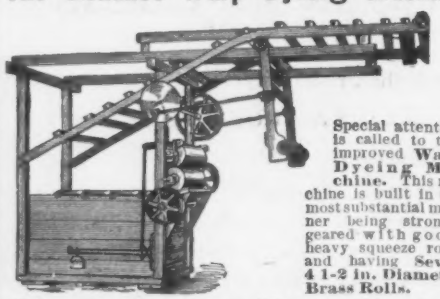
The Reliance Warp Dyeing Machine



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This machine, with our improved Plater-down has met with marvelous success, and parties desiring machinery of this class, can make no mistake on ours. For further particulars and prices, address

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Aniline and Alizarine COLORS

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And any combination to match any desired shade

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dyeing either after the one bath method absolutely fast, or on chrome bottom

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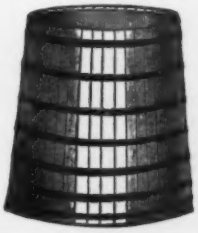

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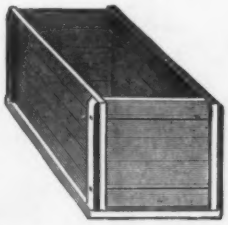

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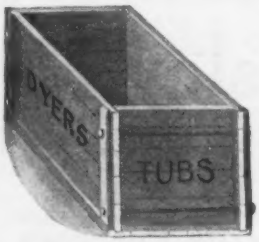

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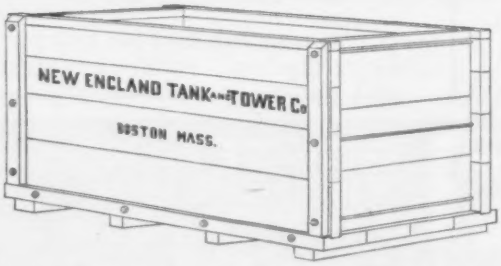

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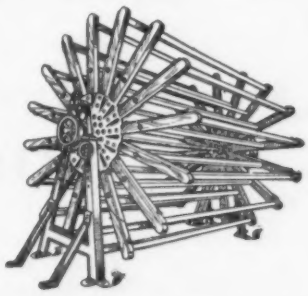
Yarn dried by this system is much softer, winds and weaves better, shows less percentage of waste and the colors develop better. In use in over two hundred mills. Simple, effective, inexpensive. Investigate its merits for your profits sake. Where great capacity is wanted my *hot air system* is unequalled.



Dye Sticks, Dry Poles, Fans, Trucks for Yarn Dryers and Dye Houses.

FRANK BAILEY, Manufacturer, Works at Braddock.
P. O. Ad., Cedar Brook, Camden Co., N. J.

FILTERS AND WATER SOFTENERS

Hungerford Filters having an aggregate capacity of over ONE HUNDRED MILLION GALLONS per day are now in operation in the textile mills of America

The Filters That Never Require A Renewal of the Filter Bed

HUNGERFORD & TERRY, Inc.
Penna. Bldg., Philadelphia, Pa.

FRIEDBERGER-AARON MFG. CO.

LEADING MANUFACTURERS

Braids and Edgings

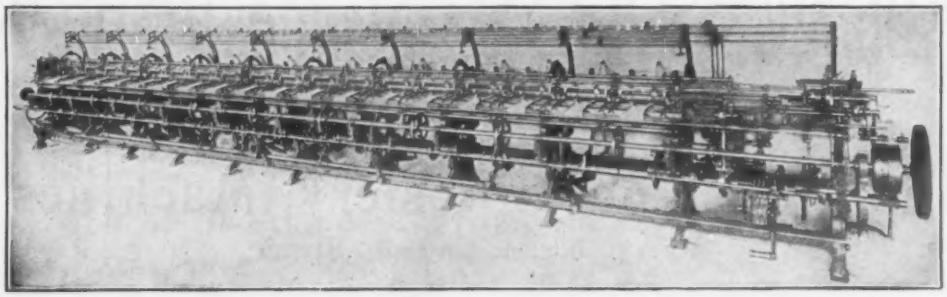
FOR TRIMMING

Ladies' Ribbed Underwear

OUR MOTTO: Correct Goods
Right Prices
Prompt Deliveries

Mills: Wayne Junction, Philadelphia

Post Office Address,
Logan Station, Philadelphia



Full Fashioned Hosiery Machines

MANUFACTURED BY

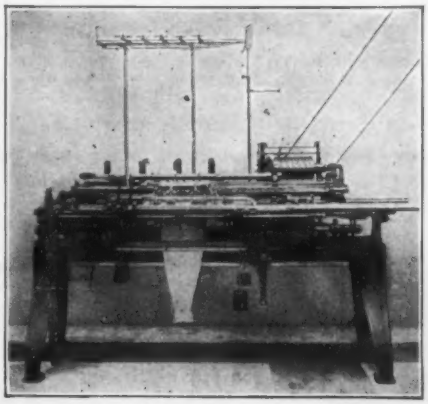
David Richter, Inc., Chemnitz, Saxony

Built in all gauges, any number of sections, and with any attachments desired.
Best constructed, easiest running and most productive machines on the market.
LACE MACHINES, system "Gothrough," **NETTING MACHINES,** system "Double Locker," **LACE CURTAIN MACHINES.**

Dubied Knitting Machines

BUILT BY

Edward Dubied & Co., Couvet, Switzerland



The most perfect knitting machines that skill and experience can produce.

Designed for the highest possible production and the greatest endurance.

Full automatic, semi-automatic and **hand machines,** for **links** and **links,** (pearl stitch) flat and tubular **automatic widening, jacquard, shaker, accordion bias neckties.**

Machines can be seen in operation.

Complete stock of supplies carried in New York. All parts interchangeable.

Kuechenmeister winders, Standard overseamers, whipstitch overseamers with automatic trimming attachment.

Write for our illustrated Book "A"

E. O. SPINDLER, Agent

350 Broadway Rooms 520-24 New York, N. Y.

THE GROSSER KNITTING MACHINE CO.

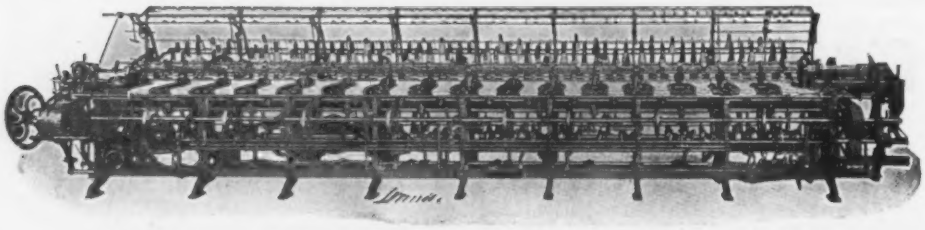
MAX NYDEGGER

Wool Exchange, 260 W. Broadway, New York

ALL SPECIAL MACHINES FOR ANY ARTICLE THAT IS KNIT

Full Fashioned Hosiery Machines

System **G. Hilscher, Chemnitz, Saxony**

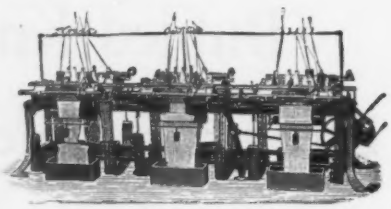


16 Section "COTTON HILSCHER" Machine for Full Fashioned Hosiery, Silk, Cotton, Wool, etc.

Gold Medal, Paris, 1900 Numerous Patents Covering Special Improvements

GROSSER Flat Knitting Machines

For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.



CIRCULAR FRENCH FRAMES

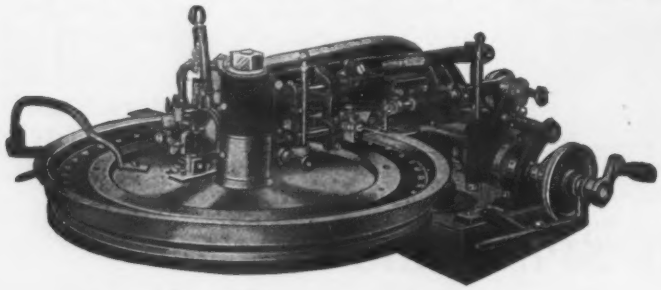
C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (openwork) Fabrics, etc.

RASHEL MACHINES [Double Rib Warp Knitting Machines.]

For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool, cotton.

THE LOOPER THAT LOOPS!

Two thread lock stitch machine with reliable trimmer and raveller producing *indestructible, flat elastic seam.* No hosiery or underwear plant up to date without this machine.



DIAMOND OVERSEAMERS

for all classes of selvage goods, Full Fashioned Hosiery, Underwear, etc.

FINISHING MACHINES

for Knit Goods of all styles.

WINDERS

for finest yarns.

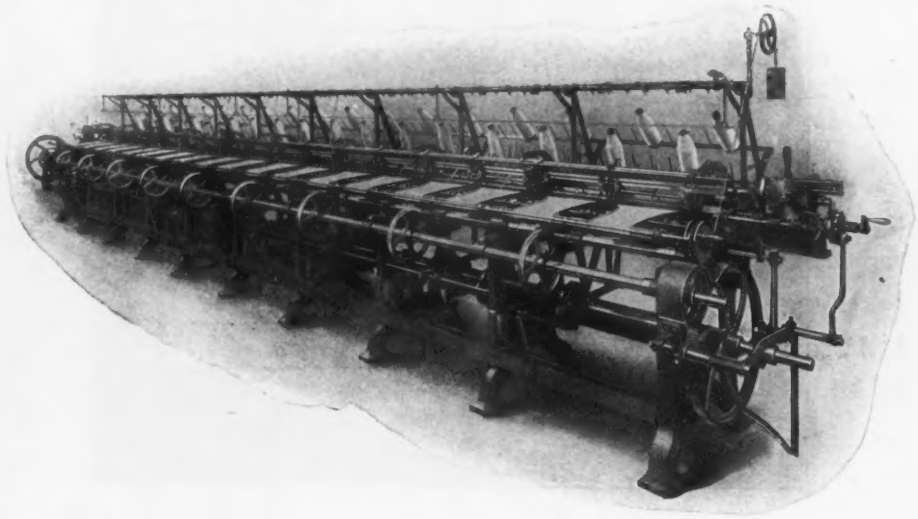
Information, Samples and Specifications at Your Disposition.

Full Fashioned Hosiery Machines

BUILT BY

Schubert & Salzer Maschinenfabrik and Branch Works H. Alban Ludwig, Chemnitz, Germany

Largest Manufacturers of All Classes of Hosiery Machines



Since the acquisition of the Ludwig Plant, Schubert & Salzer have continued the construction of Full Fashioned Hosiery Machines in both systems, the Ludwig with divided narrowing tackle, movable knocking-over bars, etc., and both types with various special features and all the practical attachments known to the trade. Built in all gauges from 14 to 34 needles to the inch, from 12 to 24 sections.

Best Constructed and Most Productive Machines on the Market

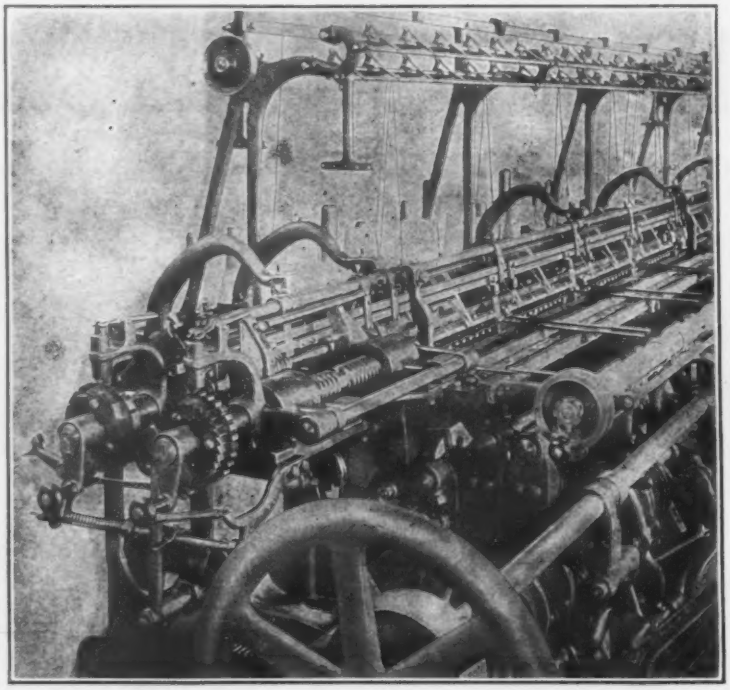
REFERENCES:

All the leading manufacturers of full-fashioned hosiery in this country.

AMERICAN REPRESENTATIVE:

OTTO WALTHER, 507 Bourse, Philadelphia

A MACHINE OF 50,000 PARTS



Full Fashioned hosiery machines have approximately 50,000 parts. This fact alone is suffiicient reason to give the American built machines the preference.

The Reading machine is built stronger and less subject to break downs than most of the imported types. Yet, in case of an accident our stock room of over a million parts allows of immediate replacement.

Every part interchangeable and as finely and accurately constructed as the best of American mechanics can make it.

Full Fashioned knitting has become an American industry using American built machinery.

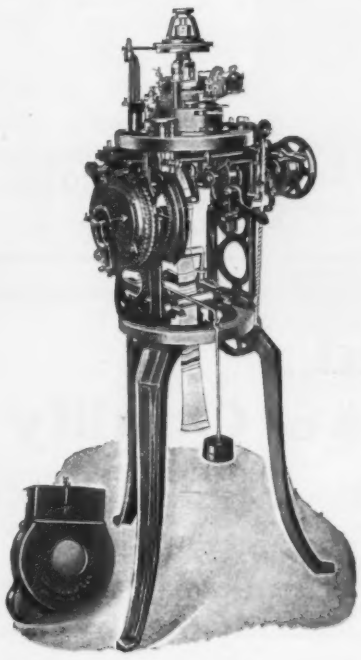
Ask for proof of our claim for superiority.

TEXTILE MACHINE WORKS

READING, PA.

A Still Newer Necktie Machine

For Diagonal Patterns



AMONG our other new features are a body machine with revolving cams, instead of revolving cylinder and dial.

This machine is equipped with the dogless attachment, thus eliminating the many troubles due to the use of dogs with which all other American rib machines have to contend.

In addition there is a new friction drive which facilitates starting the machine from either front or back.

Also an improved yarn guide and latch guard.

Wildman Mfg. Co.

Established 1889

Norristown, Pa.

Trade Mark

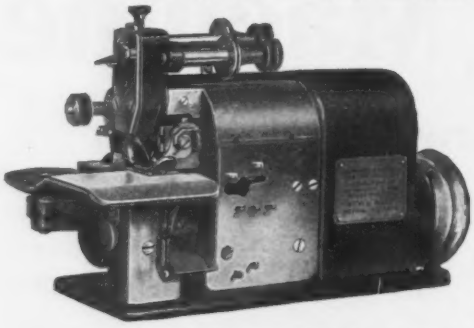
The Merrow

FAST

DURABLE

Light Running

High Speed Overseaming, Overedging and Shell Stitch Machines are



OUR CLASS 60 MACHINES for Trimming and Overseaming in one Operation produce the strongest, best Seams and do it with the greatest economy.

USE STYLE 18 for Horse Blankets. STYLE 17 B or 22 for Bed Blankets. STYLE 35 E SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. 467 Broadway, cor. Grand St., N.Y.
815 Van Buren St., Chicago, Ill. 1019 E. Baltimore St., Baltimore, Md.

Imported Knitting Machines of Quality

SPECIALTIES

Karl Lieberknecht, Oberlungwitz, Saxony

FULL FASHIONED MACHINES. "System Cotton" for plain and ribbed Hosiery, Underwear, Gloves and Neckties.

RIB MACHINES, high speed, for Rib Tops, Neckties, Hosiery in plain, striped and accordion effects.

WARP MACHINES (120 courses per minute) for Tricot Fabrics.

Otto Seifert, Burgstaedt, Saxony

WARP MACHINES, for Elastic Hat Bands, Mourning Bands, Shawls and Scarfs.

JACQUARD WARP MACHINES, for Veilings, Laces, Shawls, Insertions, etc.

Louis Hirsch 173-177 Lafayette St., New York City

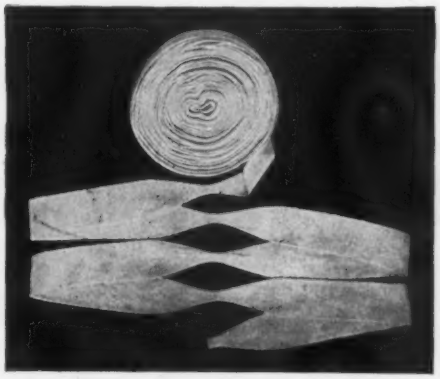
Sole Representative in U. S. and Canada

Union Special Pointed Collarette

Collarette strip prepared in cutting department

No trimmers to stretch neck on sewing machines

Fold in Collarette strip indicates to operator center of strip, insuring correct size of neck



Novel device to fold collarette strip

Operation easily accomplished

Novel manner of preparing collarette strip

Different sizes of neck easily obtained in cutting

Union Special Machine Company

BRANCHES
Boston, 96 South St.
Amsterdam, 13 Railroad St.
Rochester, 153 St. Paul St.
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HOME OFFICE AND FACTORY
300 W. Kinzie St., Chicago, Ill.

GENERAL EASTERN OFFICE
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SPECIAL STEELS

For Textile and Knitting Machine Parts.

Ring and Dial Forgings.

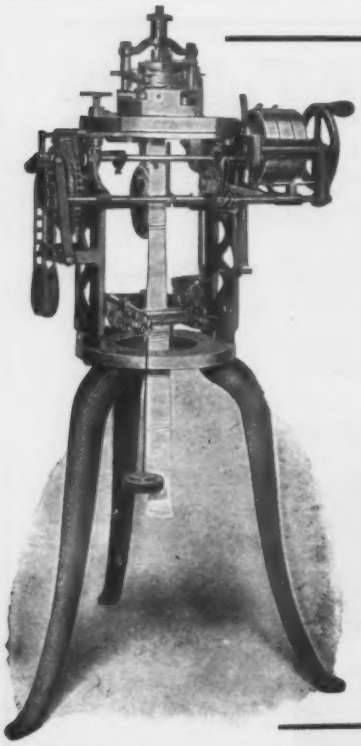
Cold Rolled Spring Steel Strips and Wires,

CUMBERLAND TURNED, GROUND and POLISHED SHAFTING

FIELD & COMPANY, Inc.

116 North 7th Street Philadelphia, Pa.

For steel parts of any textile machine write us—ask for Catalog "D"



H. BRINTON COMPANY

213-217 Race Street, Philadelphia, Pa.

BUILDERS OF

Circular Knitting Machinery

of every kind for every purpose

HOSIERY RIBBERS

with Splicing, Striping, Two-speed, Selvage Welt and French Welt Attachments.

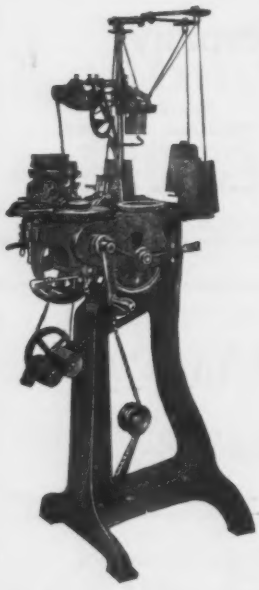
Full Automatic Hosiery Footers

BODY MACHINES, SLEEVERS, etc.

for Underwear, Sweaters, Toques, etc.

NECKTIE MACHINES

for making all kinds of tubular knitted scarfs.
Write for catalog, prices and samples.



THE INVINCIBLE

Full Automatic Knitter

The machine that stands for

QUALITY OF PRODUCT

Jenckes Knitting Machine Co.

SUCCESSOR TO
KNITTING MACHINE DEPARTMENT OF
E. JENCKES MFG. CO.

Pawtucket, R. I.

Philadelphia Show Rooms, 1211-1217 Filbert Street

Does Your Trade-mark MARK or MAR?

A trade-mark should distinguish, not deface, the fabric or garment it is placed upon. The Kaumagraph Process of Textile Stamping produces the most beautiful results of any trade-mark stamping process yet devised. It is as cheap or cheaper, as fast or faster than any other process—and it is the most permanent. These are sweeping statements but they are demonstrable. We solicit an opportunity to demonstrate them. Practically all manufacturers of fabrics now being advertised, are users of the Kaumagraph Process. We believe the combined judgment of these men to be worth the consideration of any manufacturer interested in Efficiency in trade-mark stamping on fabric.

KAUMAGRAPH PROCESS of TEXTILE STAMPING

TRADE Holeproof MARK

Carl Treschl 4½ Pres.

A Few Users

American Woolen Co.
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Arlington Mills
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A.W.Co PURITAN 1620 SERGE

American Felt Company

TRADE MARK

The Kaumagraph Process is the only process that will mark successfully every kind of fabric—dark or light, rough or smooth, ribbed or plain, from silk to blankets. It stamps any design or trade-mark, however elaborate, on any fabric in any color (silver and gold also) with absolute uniformity and perfect detail.

You buy Kaumagraph stamps ***ready for use***, either in packages or in rolls of thin paper tape. They are applied automatically to goods during some process of manufacture, or very rapidly by hand with unskilled labor. Their cost is insignificant, especially in large quantities.

Silver and gold stamping costs no more than colors by the Kaumagraph Process. It is much more rapid than any of the decalcomanie processes because Kaumagraph stamps do not need to be cut apart or wet. Kaumagraph impressions are dry, do not blur or offset, and as the composition tends to penetrate the goods instead of remaining on the surface, the Kaumagraph stamp is more permanent than any other on the market.

The Kaumagraph Process is used on practically all fabrics now being advertised. Manufacturers, who are considering trade-marking their goods or adopting more efficient and economical methods of trade-marking are urged to write us frankly without thought of obligation. Meanwhile use the coupon now.

TEAR OFF AND MAIL THE COUPON

KAUMAGRAPH CO., 209 W. 38th Street, New York TEAR OFF

Send me samples and more information

My name, address and firm name are written below

MERCERIZED YARNS

Dyers of

INDANTHRENE COLORS—GUARANTEED FADELESS

to

LIGHT—WASHING—BLEACHING

Aberfoyle

Manufacturing Company

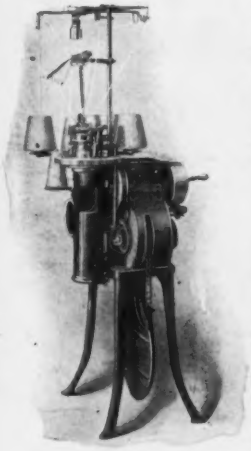
CHESTER, PA.

A New System of Machinery for Producing Seamless Hosiery

Scott & Williams Model B

(Incorporated)

Replacing Former Model B



Five Yarn Changes.
Sectional slackening prior to the heavy yarn changes, thereby preventing cutting and waste.
Fabric also slackened where high splicing yarn is inserted, thus insuring narrow ankle and foot.
For transfer work less moves than any other machine on the market.

Scott & Williams Model F

(Incorporated)

The most comprehensive machine ever offered to the trade.
Makes women's hose with integral welt—no sewing necessary.
Or will make women's hose with selvage top, using any kind of yarn from silk to carded cotton.
Makes half hose without a transfer.
All dropped from the machine—looping alone required.
Anti-run-back course preventing ravelling from garter tears and other causes.
This machine may also be used for making string work, or half hose transferred in the old fashioned way.

Philadelphia **SCOTT & WILLIAMS, Inc., 88 Pearl Street, Boston, Mass.** Utica

The Reece Button-Hole Machine

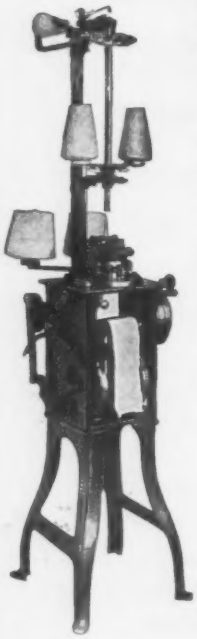
For Cutting and Stitching Straight Double-Barred Buttonholes

This machine is designed for cutting and stitching straight double-barred buttonholes without eyelets, from ⅛ of an inch in length up to 1 inch, in knit goods, shirts, shirtbands, collars, cuffs, etc., also on knit goods of all kinds. It is superior to all other machines, as it is the *only single thread* buttonhole machine on the market doing away with the bobbin or under thread, thereby making a great saving in the use of thread, and *it will produce more than double the quantity of work of any other machine*, thus saving the employment of an extra operator and the space of an extra machine. The quality of the work produced is superior to any other buttonhole, from the fact that the stitch is elastic, which is an important factor in knit goods. This machine is automatic in all its movements, and is an easy machine to handle, and does not require the services of a skilled operator, no cutting or pulling of the thread required, and when the buttonhole comes from the machine, it is finished in every respect and does not require to be trimmed or cut. The length of hole required can be obtained by simply turning a screw.

The machine is made of hardened steel drop forgings, thus reducing the breaking and wearing of parts to a minimum. *Samples of work and terms sent on application.*

THE REECE BUTTON-HOLE MACHINE CO.

Office and Factory - 500 to 514 Harrison Avenue, Boston, Mass.



The Highest Development in Hosiery Knitting—

The Ames "Five-in-One"

In our first advertisement of the new A. N. Ames Automatic Knitting Machine in the Textile World Record we claimed that this machine has *at least 25 economic points* that make it *superior* to all others.

In four previous issues we have enumerated 20 of these points. Here are points 21 to 25:

21. The drag of the take-up can be removed when knitting circular work, the idle thread being held so that it will not unwind from the bobbin when knitting the heel and toe.

22. It has a slow-down speed and can be changed to the reciprocating movement without jar.

23. There is a web take-up (for ladies' string work) which can be removed very easily when not needed. Also a raising device for transfer work.

24. The machine can be run with either single or double feed by adjusting a pin in one of two positions.

25. All parts are accessible from the front of the machine.

Now look up the other 20 distinctive features of the "Five-in-One." Or write today for complete details to

The A. N. Ames Knitting Machine Company

Factory and Main Office, Main St., Franklin, N. H.

THE MOST COMPLETE LINE OF

Sweater Coat Machines

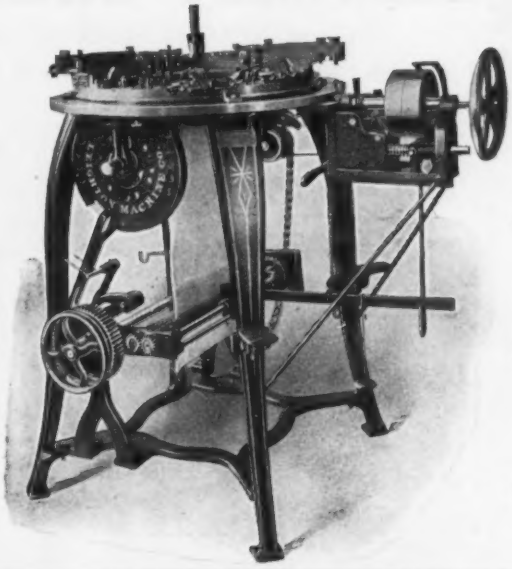
Automatic Racking Machines with or without striping attachments.
Herring Bone Stitch Coat Machines.
Plain Sweater Coat Machines.
Pineapple Stitch Sweater Machines.
Jersey Sweater Machines.
Plain Binding Machines.
Rotary Jacquard Binding Machines.

FOR INFORMATION, ADDRESS

STAFFORD & HOLT,

LITTLE FALLS, NEW YORK, U. S. A.

Leighton Improved Circular Knitting Machines



FOR SWEATER COATS

Give Good Production and Excellent Quality

IN

Automatic Racked Fancy

OR

Plain Stitches

On Wool, Worsted or Cotton Plated

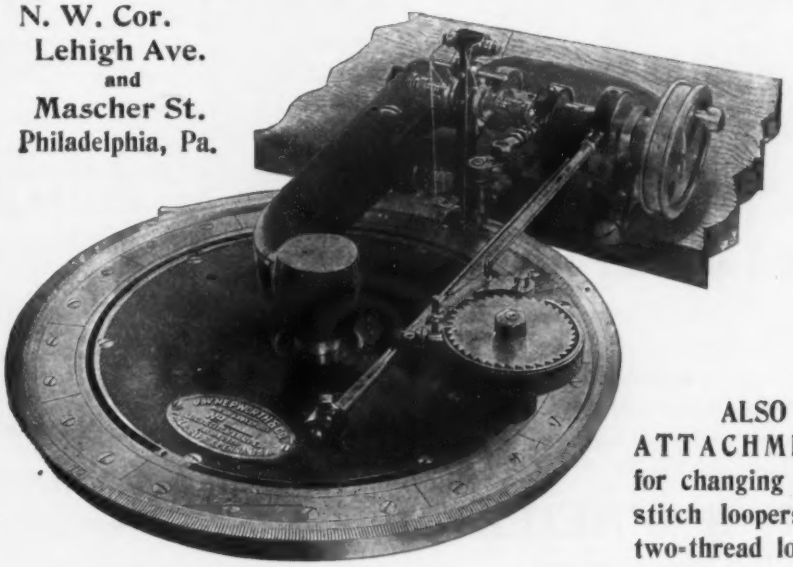
We also Build Jersey or Ribbed Underwear Machines, 4 to 16 Feeds

Leighton Machine Company

Manchester, N. H.

John W. Hepworth & Company

N. W. Cor.
Lehigh Ave.
and
Mascher St.
Philadelphia, Pa.



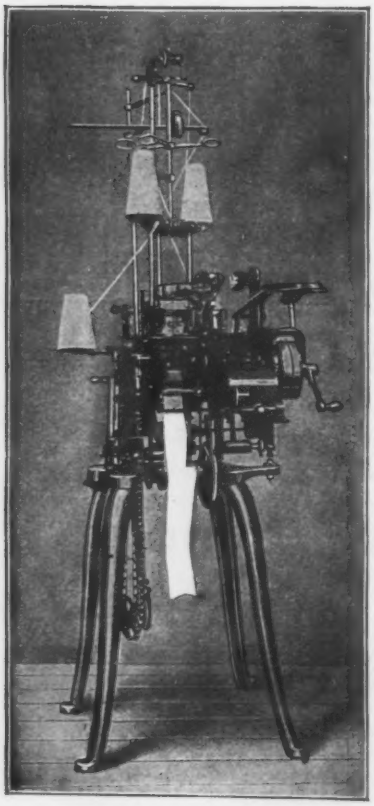
Makers of Two Thread Elastic Lock Stitch Loopers

ALSO ATTACHMENTS for changing our single stitch loopers into the two-thread loopers.

PAXTON & O'NEILL

Full Automatic

Yarn Changers and Platers



Easy Transfer

Accurate Measuring Device

Produce Finest Fabric Made On Any Latch Needle Machine

FOR LADIES or HALF HOSE

Makes Ladies' Hose with Garter Top.
No Ravel;
Silk, Plated, or Mercerized Leg.
High Splice, Double Sole, with Advanced Toe, Linen or Mercerized Heel and Toe.

PAXTON & O'NEILL

537-41 North Third Street, Philadelphia

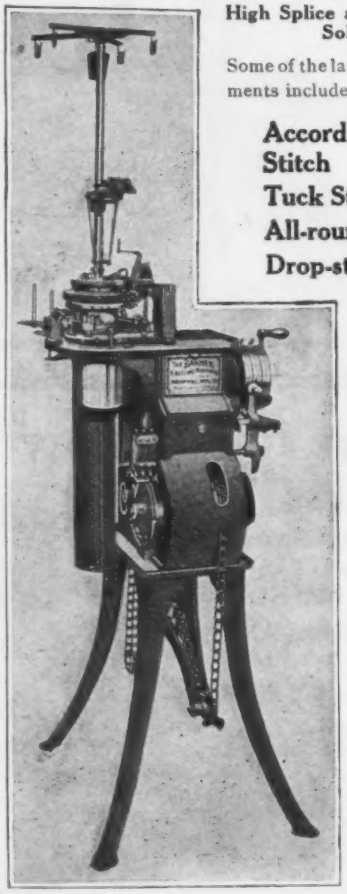
"THE BANNER"
HEMPHILL'S LATEST

FULL AUTOMATIC MACHINE

The First Practical Revolving Cylinder Machine on the Market

Built for either plain or split foot work, single or double feed. Adapted to manufacture hose with linen or mercerized heel or toe.

Also for Plaited Goods, Silk and String Work



High Splice and Double Sole

Some of the latest improvements include:

Accordion Stitch
Tuck Stitch
All-round Drop-stitch

These Improvements are fully AUTOMATIC

Largest Production

More Yarn Changes

Highest Speed

Simplest

Least Repairs

Over 2500 sold and delivered the first half of the present year

PRODUCES A SUPERIOR QUALITY OF WORK

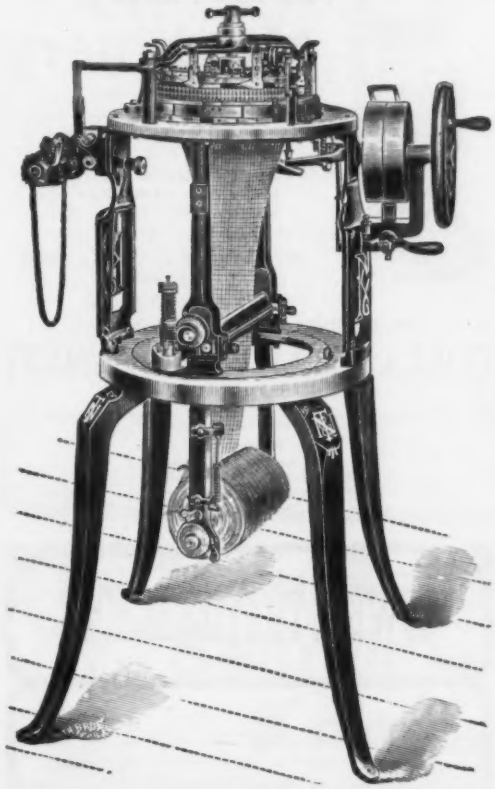
Hemphill Mfg. Co.

131 Clay Street - PAWTUCKET, R. I.

Average Production 100 Machines a Week

NYE & TREDICK CO.

718-720 Cherry Street
PHILADELPHIA, PA.



Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production
UNEXCELLED

NYE & TREDICK CO.

1913

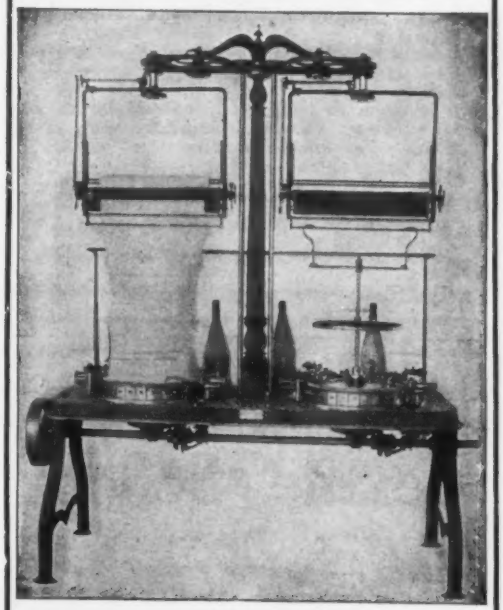
CRANE MFG. CO.

Established 1870 — LAKEPORT, N. H. — Incorporated 1890

Spring and Latch Needle Machines

for both Rib and Plain Work
Economically Producing

A GREAT VARIETY OF FABRICS



Spring Needle Underwear Machine with Automatic Takeup

This machine is made in sizes from 13" to 22" in diameter of any desired gauge, the number of feeds depending on the size of cylinders,

Also built in sizes from 2½" to 40" in diameter for the production of a great variety of fabrics.

Aside from the feeds for plain fabrics the stockinet, eider down and astrachan feeds are superior to any on the market.

Many of these machines are in use in the leading mills.

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Patent removable hardened Wing Burr Wheels.
Patent Thread Stop Motion can be fitted to 20" and 40" frames and are specially adapted for making fine Jersey Cloth and Stockinet.
Our flat machine is adapted for knitting collarettes.

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This school is located in New Bedford, Mass., a rapidly growing city and already the largest producer of fine cotton goods in this country.

Instruction given in the theory and art of cotton manufacture in all its branches.

The school has one hundred ten machines for instruction purposes in carding, spinning and weaving departments; seventy in knitting department, the most complete department of the kind in equipment and scope of instruction in this country; twenty-seven machines in machine shop; thoroughly equipped departments in chemistry and dyeing, in designing, and mechanics.

Every instructor a man of broad experience and training.

Fourteenth year. Many graduates filling positions of trust and responsibility. Catalogue sent free on application. Address,

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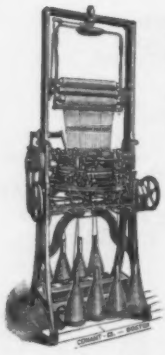

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54 Standard "B" Knitters for sizes.
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"So the garment can be buttoned when on," you would probably reply.

Then why sew buttons on in such a way that it is almost impossible to button the garment neatly, especially when starched? Why have the buttons so tight that they will not stand the wear and tear of the laundry? Why sew them without any allowance for thread shrinkage?

Why do these things when with the

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you can sew buttons neatly and uniformly with only one thread, (instead of two), with an allowance for thread shrinkage, and with a raised, hand-sewed effect?

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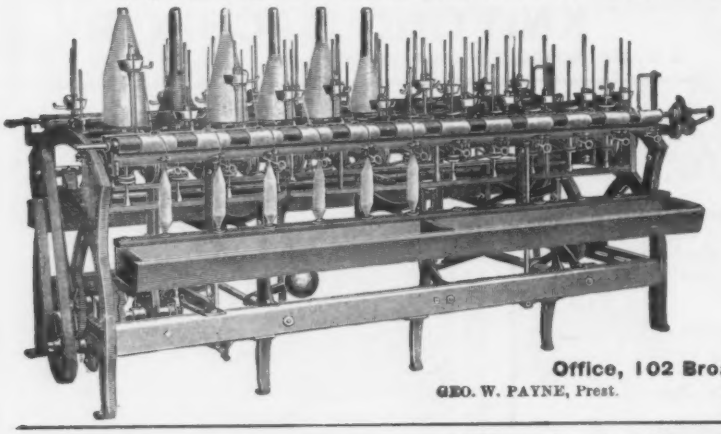
OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin,



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To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3, or more ends into one.

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Ring Dresser, Spooler and Reel Spindles, Cop Skewers Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

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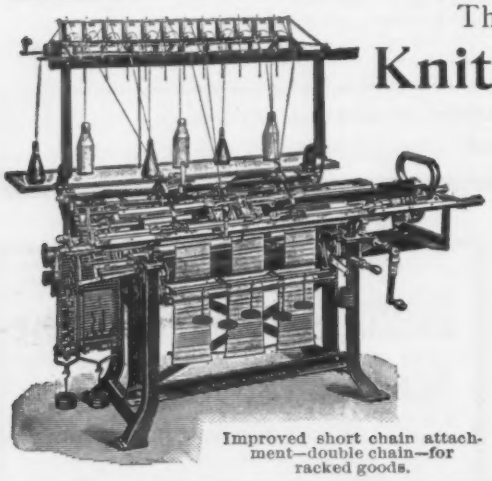

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160,000 Knitting Machines in use all over the Universe

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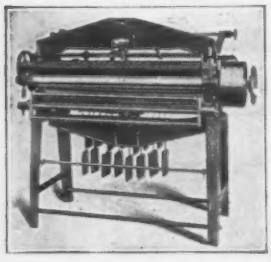

The "1912" Cloth Cutting Folding and Winding Machine.

This machine will cut down operating expenses. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls them up in one operation, and at all times gets one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the bolt of cloth to show the manufacturer whether or not he is getting the number of yards he is paying for. With the high price of cotton to-day every knit goods manufacturer ought to look into this to see if he is getting the maximum efficiency at the least expense. You will find when you come to figure it up in the course of a year that the labor it saves is a big item.

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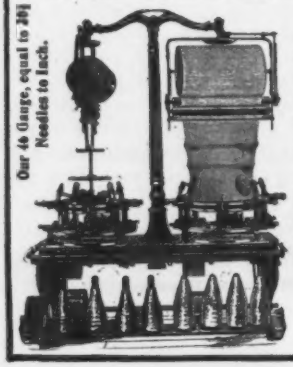

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A Simple, Inexpensive Machine for Attaching Tickets on Hosiery, Underwear, etc.

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Is operated by foot power and has a **patented WORK-HOLDING DEVICE carrying one dozen or more pairs of hose, keeping them in perfect alignment and presenting the tops in position to receive the tickets AT LEAST TWENTY-FIVE PER CENT QUICKER** than by any other method now in use.

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The STANDARD F, with attachments, can make any and all of these fabrics:

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Of Circular Spring Needle Loop-Wheel Knitting Machinery.

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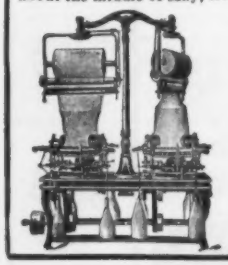
We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.

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Seamless Woven and Rubber lined EUREKA COTTON HOSE, has no equal. Send for circular and testimonials.

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Circular Rib Top and Seaming Machines.

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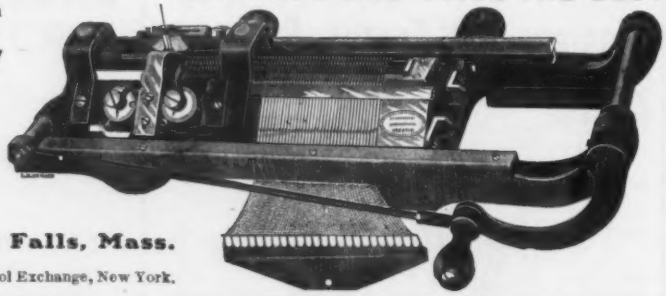

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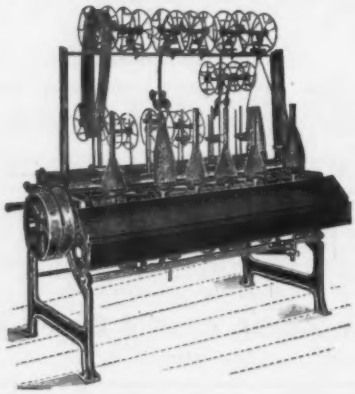

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Manufacturers like our Latch Needles

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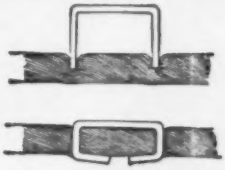
The fine points escape the threads and do not break them. The staple ends lie perfectly flat and smooth and do not stick up to catch on other goods. The stitch is readily picked out with the fingers.

THE STITCH OF OTHER MACHINES USING THE HEAVY WIRE



The coarse heavy wire and the blunt staples break the threads and leave unsightly holes after they are removed and require a knife to extract the stitch.

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Uses pointed staples, cannot tear the finest fabric.

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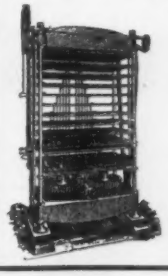

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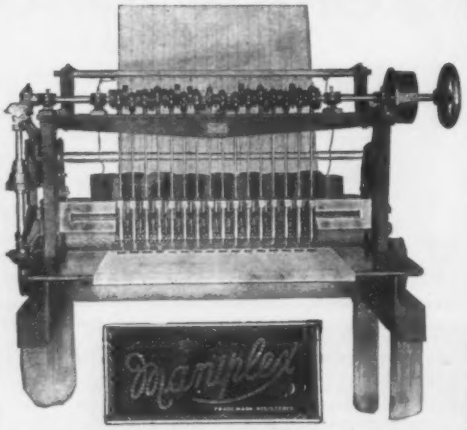

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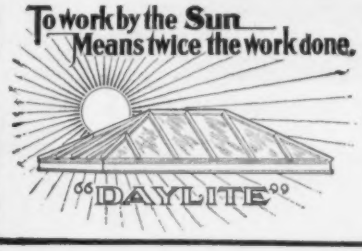

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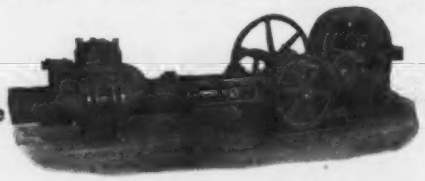

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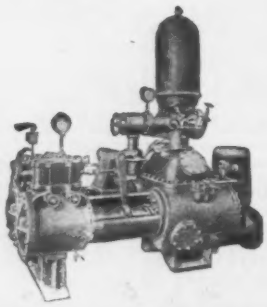

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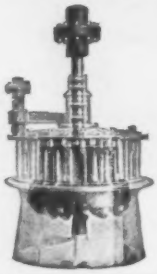

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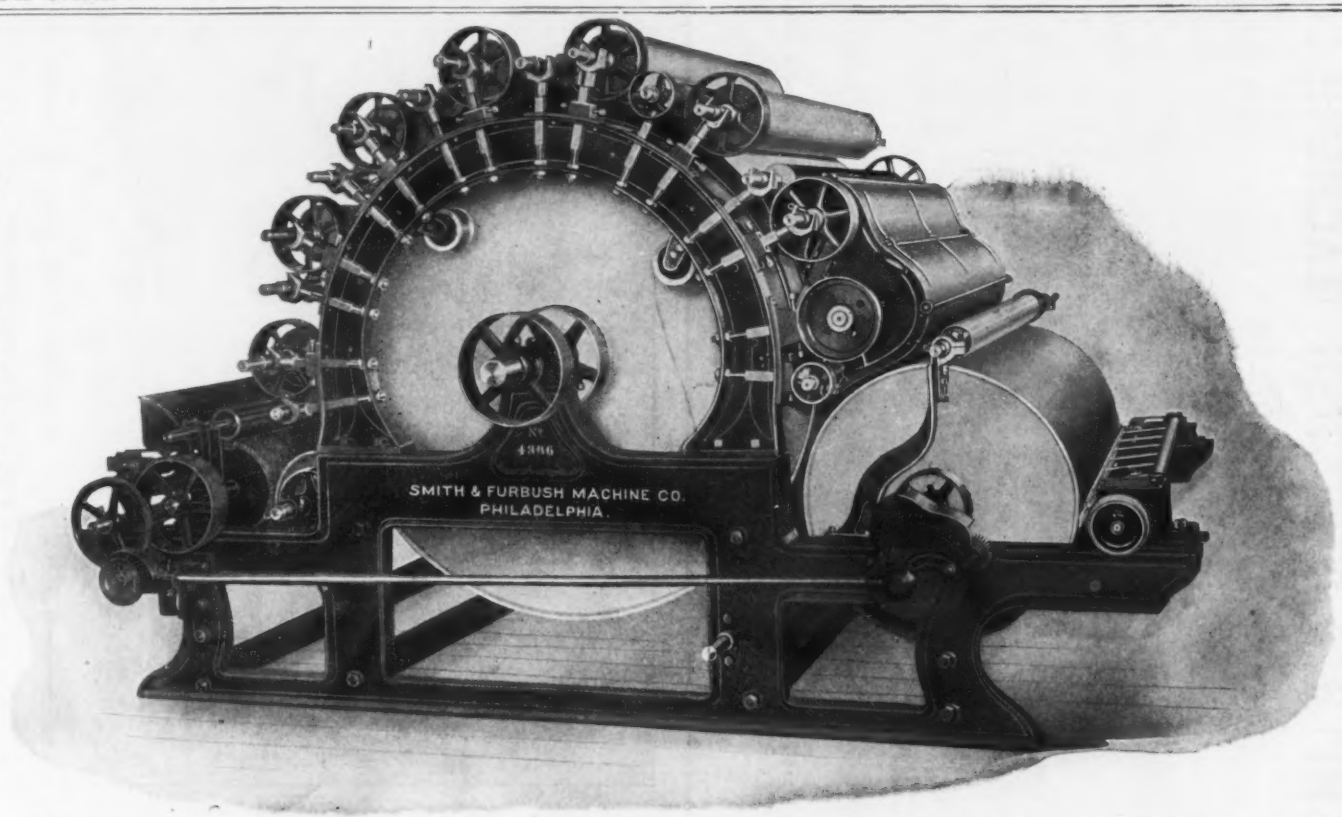
PHILADELPHIA

WOOL CARD — Circular No. 65A



FIRST BREAKER CARD NO. 6

One of the large number of styles of Cards we build. Write for further particulars, Circular No. 65 A.

Main Cylinder 60 Inches Diameter and Seven Workers and Strippers. Case Hardened Journals, Ball and Socket Sleeve Bearings, Convenient and Positive Adjustments. We build a complete line of Woolen and Worsted Carding Machines to meet the requirements of the Manufacturer. Our Automatic Self-Weighing Scale Feeder is built to embody the latest improvements.

SMITH & FURBUSH MACHINE CO.,

PHILADELPHIA

Manufacturers of

PICKERS—Lumpers; Rag, Burr, Wool, Cotton, Jute, Fearnaught and Garnett Pickers; also Rag, Carpet and Jute Shredders.

WILLOWS—Continuous Cotton Stock Opening, Cleaning, Metal Extracting and Condensing Outfit; also Square Box and Cone Willows or Dusters.

GARNETT MACHINES—For carding cotton and woolen waste clippings, etc.; also for manufacturing cotton, wool and jute batting or felts.

FEEDS—Self-feeds for cotton, wool, worsted or jute; also Camel Backs, Blanketes and Apperlys.

METALLIC BREASTS—Burring Machines and Self-Stripping Feed Rolls for Cards and Garnett Machines.

RECLAIMING MACHINE—For Opening and Cleaning various kinds of Cotton Mill Waste.

CARDS—Woolen, Worsted, Cotton Waste, Shoddy, Hair and Jute Cards; also Special Cards for the manufacture of Wool Hats.

MULES—Heavy and Durable for Wool and Waste Yarn.

TWISTERS—Plain or Fancy Twisters for Flake, Loop or Bourette Yarn.

BOBBIN WINDERS—Automatic Jack Bobbin Builder and Adjustable Creel for different length spools.

WARPING MACHINERY—Copper Cylinder Warp Dressers with single and double size pans; Beamers; Section and Pinless Warp Mills, Creels and Dresser Spoolers for Wool or Worsted.

GRINDERS, Etc.—Floor, Traverse and Portable Grinders for Cards, Garnetts or Rag Pickers; also Turning Rests, Fillet Winders, Card Stretchers and Cleaning Frames.

A complete line of Machinery for Manufacturing Gunny Bagging from Old Gunny Bagging; also for Manufacturing Mop Yarn and Rope from Cotton Waste.

Felting Machinery for Manufacturing Soft Felts or Commercial Batts, for Mattresses, Comforts, etc., made from Cotton Waste, Linters, Jute, Wool and Wool Waste.

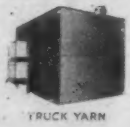
Special Circulars furnished for each Machine.

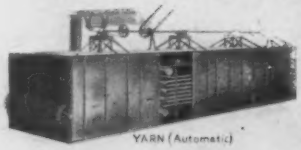
PROCTOR DRYERS

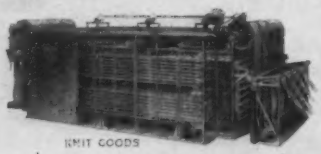
Formerly the "CYCLONE"
Fireproof

STOCKING

COTTON AND WOOL STOCK


TRUCK YARN


YARN (Automatic)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Proctor Dryers of various types are being successfully used on all kinds of goods, handling the material at a very small cost per pound

Write for Catalog Y

The Philadelphia Textile Machinery Co.

Philadelphia, Pennsylvania

H. G. Mayer, Charlotte, N. C.

Progressive finishers use Cell Driers because a high speed continuous process pays, because absence of upkeep expense pays, and because saving in labor pays too.

Are you interested in reducing costs?

CELL DRIER MACHINE CO.
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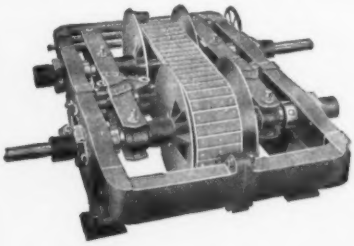
OVER 300 TEXTILE MILLS

have made their tentering, drying, singeing, washing, bleaching, dyeing, printing and finishing machines handle more goods, do better work and do it cheaper by driving them with



"The Reeves" Variable Speed Transmission

It's the wide range of speed variation, positively any speed between fastest and slowest without stopping or shifting a belt and steady power all the time available only through "The Reeves" Variable Speed Transmission that makes these results possible.

"The Reeves" Variable Speed Transmission saves time, labor and trouble and improves your product.

Now is the time to install it; your mill is the place.

Write us or our agents for Textile Mill Circular.

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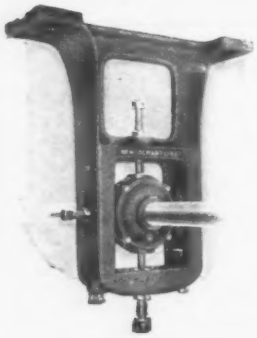

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New Departure guaranteed ball bearing shaft hangers pay for themselves in the power they save. They are a simple, strong, enduring, accurate, machine-shop product that cannot be compared with the old-style, power-consuming hangers. They have been designed especially for main shaft support, and are fitted with self-aligning ball bearings that effectually compensate for any shaft distortion.

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The New Departure Mfg. Co.

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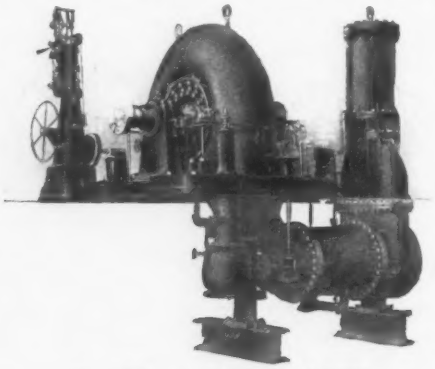
Hartford, Conn.

"SMITH"

Hydraulic Turbines



One of three units each of 1700 H.P., 720 R.P.M., 280 feet head.

These turbines when tested in place gave over 87% efficiency. Turbines built for heads from 5 to 600 feet.

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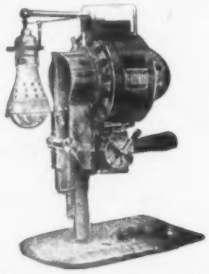
What a Difference It Makes



The Eastman Cutter

Makes an unpleasant contrast with any other method of cutting cloth. Fast, acturate and economical; backed by our service department and strong guarantee it is the one best bet for the cutting-up trade.

Free trial for all styles

Round Knives **Alternating Current**
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Another mill which boils its sizing two hours reports an average production of 96%, running no overtime, of which only 1½% is seconds.

This 1½% tells the tale and is a direct result of SIZOL on 30's warps.

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